

EXHIBIT A

No. 04-1350

IN THE
Supreme Court of the United States

KSR INTERNATIONAL CO.,
Petitioner,

v.

TELEFLEX INC. and TECHNOLOGY HOLDING CO.,
Respondents.

**On Petition for Writ of Certiorari to the
United States Court of Appeals
for the Federal Circuit**

**MOTION FOR LEAVE TO FILE *AMICUS CURIAE*
BRIEF AND BRIEF OF CISCO SYSTEMS INC.,
MICROSOFT CORP., HALLMARK CARDS,
INCORPORATED, V.F. CORPORATION, AND
FORTUNE BRANDS INC. AS *AMICI CURIAE*
IN SUPPORT OF PETITIONER**

PETER A. SULLIVAN *
HUGHES HUBBARD & REED LLP
One Battery Park Plaza
New York, New York 10004
(212) 837-6000

*Counsel for Cisco Systems Inc.,
Microsoft Corp., Hallmark
Cards, Incorporated,
V.F. Corporation, and
Fortune Brands Inc.*

* Counsel of Record

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Pursuant to Rule 37.3(b) of the Rules of the Supreme Court of the United States, Cisco Systems Inc., Microsoft Corp., Hallmark Cards, Incorporated, V.F. Corporation and Fortune Brands Inc. hereby request leave to file the accompanying *amicus curiae* brief. This brief is submitted in support of the petition for writ of certiorari to the Court of Appeals for the Federal Circuit. Petitioner KSR International Co. has consented to the filing of this brief. Respondents Teleflex Inc. and Technology Holding Co. have not consented.

As set forth in the accompanying brief, Cisco Systems Inc., Microsoft Corp., Hallmark Cards, Incorporated, V.F. Corporation, and Fortune Brands Inc. are affected by patent laws and have a deep interest in their proper interpretation and application.

Cisco Systems Inc., Microsoft Corp., Hallmark Cards, Incorporated, V.F. Corporation and Fortune Brands Inc. are greatly concerned that the Federal Circuit's incorrect interpretation of the obviousness standard of Section 103(a) of the Patent Act, 35 U.S.C. § 103(a) (2001), results in unnecessary grants of patent rights on obvious extensions of existing technologies, which in turn unnecessarily increase costs to the public for products. Accordingly, Cisco Systems Inc., Microsoft Corp., Hallmark Cards, Incorporated, V.F. Corporation and Fortune Brands Inc. respectfully request leave to file the accompanying *amicus curiae* brief.

Respectfully submitted,

PETER A. SULLIVAN *
HUGHES HUBBARD & REED LLP
One Battery Park Plaza
New York, New York 10004
(212) 837-6000

*Counsel for Cisco Systems Inc.,
Microsoft Corp., Hallmark
Cards, Incorporated,
V.F. Corporation, and
Fortune Brands Inc.*

* Counsel of Record

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INTEREST OF THE *AMICI CURIAE*

Amici curiae Cisco Systems Inc., Microsoft Corp., Hallmark Cards, Incorporated, V.F. Corporation, and Fortune Brands Inc. respectfully submit this brief in support of petitioner, KSR International Co., urging the grant of the petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit because that judgment rests on an application of the obviousness test of Section 103(a) of the Patent Act that is inconsistent with Section 103(a), this Court's precedent and the policies underlying the patent laws.¹

¹ Pursuant to Rule 37.6, *amici* represent that this brief was not authored in part or in whole by counsel for any party, and that no person or entity

Cisco Systems is an innovative company of over 34,000 employees worldwide that designs and sells network equipment. It has brought products to market that have helped create the Internet as it exists today and that have helped change the way people communicate. It provides products and services in the area of IP telephony, Internet routers, home and LAN networking, and Internet and network security.

Microsoft Corporation is a company of 57,000 employees that develops, licenses and supports a wide range of software products for a multitude of computing devices. These products include operating systems, server applications, information worker productivity applications, business solutions applications, software development tools, and mobile computing and embedded devices. Microsoft also sells home entertainment systems, games and peripherals. Through MSN Network and other Internet portals, Microsoft provides Internet services and content. Microsoft is a leading innovator in the computer software industry and owns more than 5,500 U.S. patents.

Hallmark is known worldwide for its greeting cards. It also produces a wide range of gifts, keepsakes, books and decorative products. The company regularly makes use of innovations, both patented and unpatented, in the manufacture of its products. Hallmark is the defendant in *Group One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297 (Fed. Cir. 2005), in which the Federal Circuit reversed a grant of judgment as a matter of law because it found that Hallmark did not satisfy its burden with respect to the court's motivation test.

Fortune Brands is a leading consumer brands company. Its subsidiaries engage in the manufacture, production and sale of home and hardware products, golf products, office prod-

other than *amici* has made a monetary contribution to the preparation or submission of this brief.

ucts, and wine and spirits. Among the brands owned by Fortune Brands subsidiaries are Titleist, Moen, KitchenCraft, Master Lock, Swingline, Day Timer and Wilson Jones.

V.F. Corporation is a global leader in branded apparel and outdoor products with more than 50,000 employees. Its principal brands include Lee, Wrangler, Earl Jean, The North Face, Jansport, Eastpak, Vans, Reef, Kipling, Vanity Fair, Vassarette, Bestform, Lily Of France, and Red Kap.

As large industrial manufacturers, developers and users of technology, *amici* are vitally interested in the U.S. patent system and the maintenance of traditional limits on what qualifies as a patentable invention. *Amici* believe that the Federal Circuit's current interpretation of 35 U.S.C. § 103(a) hurts innovation by providing too lenient a standard for obtaining a patent, and by invading the province of courts to decide ultimate questions of patent validity. The motivation test allows patents to be issued for insignificant extensions of existing technology. The motivation test not only sets bad patent policy, but it also contravenes firmly established Supreme Court precedent for the appropriate test for obviousness under Section 103(a).

The time is right for this Court to reestablish the primacy of its precedent in this area. This case provides an excellent vehicle for doing so.

REASONS FOR GRANTING THE PETITION

I. THE FEDERAL CIRCUIT'S CURRENT TEST FOR OBVIOUSNESS HURTS INNOVATION.

The patent laws are premised on a bargain expressed in the Constitution that is made between an inventor and the public with respect to inventions not previously known to the public: in exchange for a grant of a period of exclusivity to the inventor, the public is thereafter allowed unencumbered use of the disclosed invention "to promote the . . . useful Arts."

U.S. Const. art. I, § 8; *see Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966) (the patent grant is “an inducement[] to bring forth new knowledge.”). The public must wait for a period of time for the monopoly to expire, but once it expires, it may use the patented invention freely.

Section 103(a) provides the mechanism to police the bargain. It states that no invention may be patented “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (2001). This section as enacted should prevent the patenting of routine variations of prior art.

The manner in which courts interpret Section 103(a) affects the value of this bargain. If the test for patentability becomes too lenient and allows routine variations on prior inventions to be patented anew, the public’s free use of information in the public domain is clouded by a new monopoly. Moreover, the public receives no value in the disclosure of minor variations of inventions already known and disclosed in the prior art.

The Federal Circuit’s motivation test establishes too lenient a standard for patentability, and it has had a stifling effect on true innovation because it encumbers ideas well beyond the limits imposed by Congress for patentable inventions, and effectively precludes courts from exercising their authority to decide ultimate questions of patent validity. Under the motivation test, instead of a court deciding whether claimed subject matter is patentable in view of all pertinent prior art, a trier of fact—typically a jury—is tasked with determining “whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.” *In re Rouffet*, 149 F.3d 1350, 1356 (Fed. Cir. 1998) (citations omitted). To satisfy the test, there must be some proven “‘suggestion, teaching, or motivation’ that

would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed” in a patent. (Pet. App. A at 6a (citations omitted).)

Amici have experienced first-hand the stifling effect of the motivation test. Cisco’s experience with the patent process is a case in point. Cisco has found that the proliferation of large numbers of obvious patents has increased greatly the potential for inadvertent infringement, requiring it to take defensive measures. In order to neutralize the effect of these obvious patents, Cisco has obtained hundreds of patents for defensive purposes in technology areas in which it develops products.

Microsoft has been sued for allegedly infringing dozens of questionable patents in the software field. The lack of access to software prior art, the inability to find the prior art that does exist, and the limited resources of the Patent Office, make searching by the Patent Office particularly ineffective. Given the difficulty inherent in finding software prior art, proving a software patent invalid by clear and convincing evidence, especially if a motivation to combine element is also required, is exceedingly difficult.

Hallmark is another case in point. It created and brought to market a unique curled ribbon bow that soon became a big seller. Hallmark designed a machine to make the bow, and was then sued by a company with two patents on a ribbon curling machine. The patents in question had been issued over a 40-year-old patent for a ribbon curling machine, even though the only difference between them was the manner in which the ribbon left the machine—the older patent guided curled ribbon through a tube, and the newer patents blew the curled ribbon onto a conveyor belt. After six years of litigation, the district court in 2004 invalidated the patents at the JMOL stage, calling them “indubitably obvious.” *Group One, Ltd. v. Hallmark Cards, Inc.*, No. 97-1224-CV, slip op. at 32-33 (W.D. Mo. Feb. 20, 2004). The Federal Circuit reversed last month, finding on its own reading of the record

that there was sufficient evidence to support the no-motivation element and the jury's finding in favor of the patent holder on obviousness. *Group One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297 (Fed. Cir. 2005). Thus, after eight years of litigating an "indubitably obvious" patent where the patent holder admitted that all elements of the patent were found in the prior art (and all but one element found in the single 40-year-old patent), the Federal Circuit refused to affirm on invalidity because its motivation test was not satisfied.

Since the emergence of the motivation test in the mid-1980's, V.F. Corporation increasingly has been confronted with claims of patent infringement on purported inventions involving technologically trivial subject matter. For example, the sheer number of patents on apparel items such as bras has exploded, and many of these patents involve routine variations on known technology.

Fortune Brands' experience with its products is similar. A simple search for golf ball patents issued in 2004 will yield over 200 entries. This is also true of golf clubs and other Fortune Brand products. Fortune Brands is also being confronted with claims of infringement and requests for licenses on purported inventions and must file its own patents as a defensive measure to prevent others from filing patents that could affect its ability to market new products without hindrance.

Amici's experiences were echoed by other representatives from industry in hearings held by the Federal Trade Commission in 2002. Among the concerns raised:

- Poor quality patents contribute to an "anticommons" effect: a situation where multiple patent owners each have a right to exclude others from a resource and no one may have effective use of sufficient resources to create a product. (Transcript of FTC Hearing on Business Perspectives on Patents: Biotech and Pharmaceuticals (Feb. 26, 2002) at 241.) This is a partic-

ular problem in the software field, where a patent for a single subroutine could affect software that has a multitude of patentable ideas. (Transcript of FTC Hearing on Business Perspectives on Patents: Software and the Internet (Feb. 27, 2002) at 351-52.);

- Defensive, large scale patenting drains resources away from real innovation: scientists and engineers must spend time working with lawyers and patent agents to file patent applications where their time would be better spent on product development and research. (Transcript of FTC Hearing on Business Perspectives on Patents: Hardware and Semiconductors (Feb. 28, 2002) at 677-78.);
- The proliferation of trivial patents makes product clearance nearly impossible and leads to costly royalty stacking. (Transcript of FTC Hearing on Business Perspectives on Patents: Biotech and Pharmaceuticals (Feb. 26, 2002) at 310.); and
- The multitude of patents creates uncertainty in the legal rights of the patent holders and heightens the risks associated with innovation investment decisions, which leads to decreased industry investment in research and development. (See Transcript of FTC Hearing on Business Perspectives on Patents: Hardware and Semiconductors (Feb. 28, 2002) at 696.)

While some of these concerns have been addressed through market means, *e.g.*, patent pools, cross licensing, etc., in certain situations there is no practical way to minimize the detrimental effect of awarding obvious patents. The proliferation of patent portfolio companies illustrates the point. These patent portfolio companies do not sell products themselves (and thus have no need for cross licenses); rather, they generate revenue through licensing other companies that actually make and sell products. Many of these patent portfolio companies try to patent incremental changes to a product-making company's products so that the product-

making company would unintentionally infringe when it successfully brings products to the marketplace. The long delays in the Patent Office work to their benefit by keeping the eventual coverage of their patents indefinite until they issue. They also benefit from the high cost of litigation by demanding license fees that are often less than the cost of litigation, hoping that people will pay even if they do not infringe, or, if they do infringe, it would be too costly to change the product. The relaxation of the test for patentability under Section 103(a) gives these companies the space in which to siphon off license royalties from product-making companies.

Whether companies can or cannot mitigate the impact of obvious patents is really beside the point. The mitigating transactions into which companies enter—settling disputes on patents of dubious validity, entering into excessive patent pooling, creating cross-licensing arrangements—all result in higher costs to the consuming public. A network router, a golf club, a software program, a ribbon bow, a bra all become more expensive as more and more patent holders must be paid royalties, and unnecessarily so where these obvious patents contribute no innovation to the product being sold. Ultimately, it is the public that is the loser when the patent laws are diluted in favor of obvious patents.

The benefit that the public derives from the bargain with the inventor—disclosure of inventions that are not already known—must be safeguarded. Thomas Jefferson expressed his concern for this bargain between the inventor and the public when he wrote:

[I]f a new application of our old machines be a ground of monopoly, the patent law will take from us much more good than it will give. Perhaps it may mean another thing, that while every one has a right to the distinct and separate use of the buckets, the screw, the hopper-boy, in their old forms, the patent gives you the exclusive right to combine their uses on the same object.

But if we have a right to use three things separately, I see nothing in reason, or in the patent law, which forbids our using them all together. A man has a right to use a saw, an axe, a plane, separately; may he not combine their uses on the same piece of wood? He has a right to use his knife to cut his meat, a fork to hold it; may a patentee take from him the right to combine their use on the same subject? Such a law, instead of enlarging our conveniences, as was intended, would most fearfully abridge them, and crowd us by monopolies out of the use of the things we have.

Thomas Jefferson, *Letter to Oliver Evans (Jan 16, 1814)*, in 14 Writings of Thomas Jefferson 66 (Andrew A. Lipscomb & Albert E. Bergh eds., 1903).

This Court in *Graham* noted that Jefferson was an enemy of monopolies but ultimately an advocate of the patent system. 383 U.S. at 7-10. But even at this writing in the later stages of his life, he was still greatly concerned with the potential for obvious patents to retake what already is in the possession of the people.

This Court must reestablish the balance between inventor and the public because the public is not getting the benefit intended by the Constitution under the current test for obviousness.

II. THE FEDERAL CIRCUIT'S CURRENT TEST IGNORES THE PRECEDENT OF THIS COURT.

In creating the motivation test, the Federal Circuit has essentially ignored this Court's precedent construing and applying Section 103(a) of the current Patent Act of 1952 and the traditional standard of "invention" that Section 103(a) was held, in *Graham*, to have codified. 383 U.S. at 17. Supreme Court intervention is required to remedy the Federal Circuit's digression.

Nowhere in *Graham* is there any discussion of a “teaching, suggestion or motivation” element in the obviousness analysis. This truism is illustrated by the way in which the Federal Circuit in this case cited the obviousness standard: it cited *Graham* for the four elements (the scope and content of the prior art, the level of skill of a person of ordinary skill in the art, the differences between the claimed invention and the prior art and objective indicia of non-obviousness), but only cited to Federal Circuit cases for the motivation test. (See Pet. App. A at 6a.)

Soon after the Federal Circuit was established, it added a form of the motivation test to the *Graham* obviousness analysis. A year after its establishment, in *In re Sernaker*, 702 F.2d 989 (Fed. Cir. 1983), the Federal Circuit included in the test of obviousness “whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings along the line of the invention in suit . . .” *Id.* at 994. In announcing this test, the *Sernaker* court relied on prior cases from the Court of Customs and Patents Appeals, but did not cite *Graham* for this proposition. See *id.* Over the next twenty-two years, the Federal Circuit continued to use a form of this test, which eventually evolved into the “teaching, suggestion or motivation” formulation of today.

In re Sernaker and later Federal Circuit cases did not cite to this Court to justify engrafting this motivation test onto the obviousness analysis. Nor could they because the test ignores the caution of this Court in *Graham* that “strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act.” 383 U.S. at 18.

Uniformity is in fact the first casualty of the Federal Circuit’s approach. As Petitioner pointed out, the *Graham* case itself likely would have come out differently if this Court

applied the motivation test. (See Pet. at 12-13.) In addition, this Court's decision in *Dann v. Johnston*, 425 U.S. 219 (1976), a case invalidating a software patent, may have come out differently if a motivation test were applied rather than a straight application of the *Graham* analysis.

Other Supreme Court cases also would have been decided differently had a motivation test been applied to them. *Amici* believe that at least four other Supreme cases would have gone the other way applying the Federal Circuit's test.

In *Peters v. Hanson*, 129 U.S. 541, 549-50 (1889), one of the patents described the use of an oval slot to make the dash-foot of carriages adjustable. The prior art included applications of slots to other structures, including "[b]ridge-work, jail-work, vehicles, dashes, tops[.]" *id.* at 551, but there was no evidence cited in *Peters* of a teaching, suggestion or motivation to apply oval slots to the dash-foot of carriages. This Court nevertheless invalidated the patent, concluding that "any ordinarily skilled mechanic . . . would look for some other manner to make connection, for the reason that this is one of the simplest and easiest methods for connecting and allowing adjustment where both parts, when two pieces are used, are made of iron." *Id.* at 552-53.

In *Paramount Publix Corp. v. American Tri-Ergon Corp.*, 294 U.S. 464, 472-74 (1935), the patent was for a method for producing movies with sound by combining three prior art processes. There was no evidence cited in *Paramount Publix* that there was a teaching, suggestion, or motivation to combine these processes in the manner claimed. This Court nevertheless invalidated the patent, finding that the advance in the patent was "ready at hand" and merely "awaited the public acceptance of the sound motion picture" *Id.* at 476.

In *Dow Chemical Co. v. Halliburton Oil Well Cementing Co.*, 324 U.S. 320, 322 (1945), the challenged patent referred to an oil extracting process that dissolved limestone without having equipment suffer substantial corrosion in the process. There had been a previous patent (the “Frasch method”) using acid to dissolve the limestone to achieve the same result, but the acid would also harm the drilling equipment. *Id.* at 323-24. The newer process improved on the Frasch method by adding an inhibiting agent to the hydrochloric acid solution to prevent corrosion, diluting the concentrated hydrochloric acid solution and using an ordinary pump tube instead of a specially protected supply pipe to introduce the acid into the well. *Id.* at 325.

While the prior art was replete with instances of using inhibiting agents upon hydrochloric acid to prevent corrosion in iron and steel products, no one had taught or suggested the use of inhibited acids in oil wells. *Id.* at 328. Nor was any evidence offered of a motivation to create the process prior to the filing of the patent. But this Court still invalidated the patent, holding:

The fact that prior to 1932 no one had apparently thought to use an inhibitor while acidizing an oil well to increase production cannot inject into the [patented] process the attributes of an invention. . . . He who is merely the first to utilize the existing fund of public knowledge for new and obvious purposes must be satisfied with whatever fame, personal satisfaction or commercial success he may be able to achieve. Patent monopolies, with all their significant economic and social consequences, are not reserved for those who contribute so insubstantially to that fund of public knowledge.

Id.

In *Mandel Bros., Inc. v. Wallace*, 335 U.S. 291, 292-93 (1948), the challenged patent was a combination of urea and a

cosmetic to create a cosmetic that would help inhibit perspiration. This Court noted that “these [prior] patents standing alone would not have taught these patentees to experiment with urea to solve their cosmetic problem.” *Id.* at 294. Nevertheless, it declared the patent invalid because it concluded that a person of ordinary skill in the art looking for the solution described in the patent would have engaged in routine experiments and would have tried to use urea in those experiments: “[W]e think that the state of the prior art was plainly sufficient to demonstrate to any skilled chemist searching for an anticorrosive agent that he *should make the simple experiment* that was made here.” *Id.* at 294-95 (emphasis supplied).

These four cases would have been decided differently if required to satisfy the Federal Circuit’s motivation test. If the Federal Circuit’s test requires prior Supreme Court cases to be decided differently—cases that have not been overruled by subsequent Supreme Court decisions or superseded by the Patent Act²—it has strayed too far from precedent in establishing the motivation test.

The reason the Federal Circuit cites most often for its need for a motivation test is the danger of hindsight reconstruction. *See, e.g., In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999), *abrogated on other grounds by In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000) (referring to “the hindsight trap”); *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873 (Fed. Cir. 1985), *overruled on other grounds by Nobelpharma AB v. Nobelpharma USA, Inc.*, 141 F.3d 1059 (Fed. Cir. 1998) (referring to “the tempting but forbidden zone of hindsight”); *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 664 (Fed. Cir. 2000) (citations omitted) (referring to “fall[ing] victim to the insid-

² This Court in *Graham* held that the Patent Act of 1952 was a codification of prior case law on patentability and did not represent a lowering of the bar to patentability. *See Graham*, 383 U.S. at 17.

ious effect of a hindsight syndrome”). While it is unfair to judge the obviousness of an invention simply against itself, the court’s diligence in preventing hindsight has led to a substantial weakening of the standard for patentability. This Court saw no danger in hindsight that could not be accounted for under the test that it annunciated in *Graham* and reaffirmed and followed in *Sakraida v. AG Pro, Inc.*, 425 U.S. 273 (1976), and *Anderson’s-Black Rock v. Pavement Salvage Co.*, 396 U.S. 57 (1969).

To be sure, in striking the balance mandated by Section 103(a) as to what is or is not patentable, the Federal Circuit must contend with a difficult task. But the best chance the Federal Circuit has of doing so is to hew close to this Court’s precedent. All it need do is take the instruction given in *Graham*: “strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act.” 383 U.S. at 18.

III. THE MOTIVATION TEST INVADES THE PROVINCE OF THE COURT TO DETERMINE THE ULTIMATE ISSUE OF OBVIOUSNESS.

The motivation test hurts innovation not only because the test itself makes it too easy to obtain a patent for obvious inventions, but also because the test undermines a key holding of *Graham*: “the ultimate question of patent validity is one of law.” 383 U.S. at 17. Although this question “lends itself to several basic factual inquiries,” *id.*, determining whether prior art renders claimed subject matter obvious or unpatentable is a legal question that courts, not juries, routinely determined prior to the creation of the Federal Circuit. This is exemplified by this Court’s *Sakraida* decision, which directed the reinstatement of a district court’s grant of summary judgment of invalidity under Section 103(a). 425 U.S. at 273-74.

In contrast, the Federal Circuit has held that the presence or absence of a motivation to combine prior art references is a fact question for a jury to decide. *See, e.g., Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1348 (Fed. Cir. 2000). The motivation test, however, is not addressed to any of the factual inquiries identified in *Graham*, but amounts to a surrogate test for determining legal questions of obviousness. To ask whether a hypothetical person having ordinary skill in an art would have had a motivation to make a claimed invention is to redefine whether claimed subject matter meets the condition for patentability specified in Section 103(a).

The present case illustrates this point. The district court in this case held that the undisputed prior art of record rendered obvious the subject matter recited in the patent claim in issue. The Federal Circuit vacated and remanded, holding that the invalidating legal effect of prior art could not be determined as a matter of law, but was a factual question governed by the motivation test. (Pet. App. A at 8a.)

If the Federal Circuit had followed this Court's precedents in *Graham*, *Anderson's-Black Rock*, and *Sakraida*, it could have affirmed the district court on a *de novo* standard of review—as this Court ordered be done in *Sakraida*. 425 U.S. at 274-75. It goes without saying that requiring an additional factual element in obviousness determinations makes the grant of summary judgment much more difficult to obtain.

Transferring obviousness determinations from courts to juries (whether through the motivation test or another framework) also diminishes the role of the Federal Circuit as a specialized patent court. Post-verdict and appellate review of jury verdicts on questions of fact is far more limited than is review of questions of law. To the extent that ultimate questions of obviousness are treated as factual questions and decided by juries, litigants are largely and often wholly deprived, not just of access to summary adjudication, but also to any meaningful post-trial or appellate review. This result

defeats the objective of Congress in establishing the Federal Circuit to have it sit as an expert appellate court to decide patent law issues. Determining whether subject matter is “worth to the public the embarrassment of an exclusive patent,” *Graham*, 383 U.S. at 10-11 (quoting Thomas Jefferson), whether through the motivation test, a modified test or a different test altogether, must be left for courts to decide as a matter of law, not for juries to decide as a matter of fact. In holding to the contrary, the decision below raises a question of broad and general importance that merits this Court’s review.

IV. IT IS APPROPRIATE TO DECIDE THESE ISSUES NOW AND THIS CASE IS AN APPROPRIATE VEHICLE IN WHICH TO ADDRESS THEM.

It is not often that a patent case comes to the attention of this Court presenting important issues of patent law while also being unburdened by the technical complexities attendant to most patent cases. This is such a case, and it provides an excellent vehicle to address this very important question of patent law. In this regard, we note that *amicus* Hallmark will soon file a petition for certiorari seeking review of the Federal Circuit’s motivation test in the case *Group One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297. The Federal Circuit in *Group One* reversed a grant of JMOL on obviousness on the basis of the motivation test. The *Group One* case also presents an uncomplicated factual setting and would provide an appropriate vehicle, along with this case, to address the question of obviousness.

Moreover, we agree with *Amici Curiae* Twenty-Four Intellectual Property Professors that counsel for both parties are capable litigators and will ably present the salient issues to the Court. We also note that the *amicus* participation of the

intellectual property law professors will ensure that all pertinent arguments are brought to the attention of the Court.

Finally, we believe that the issue is ripe for determination under the procedural posture of the case. Deciding the question raised on certiorari in favor of the Petitioner would allow for the disposal of the case on summary judgment.

CONCLUSION

For the foregoing reasons, the petition for writ of certiorari should be granted.

Respectfully submitted,

PETER A. SULLIVAN *
HUGHES HUBBARD & REED LLP
One Battery Park Plaza
New York, New York 10004
(212) 837-6000

*Counsel for Cisco Systems Inc.,
Microsoft Corp., Hallmark
Cards, Incorporated,
V.F. Corporation, and
Fortune Brands Inc.*

* Counsel of Record

EXHIBIT B

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

BRIDGESTONE SPORTS CO., LTD., and
BRIDGESTONE GOLF, INC.,

Plaintiffs,

v.

ACUSHNET COMPANY,

Defendant.

Case No. 05-CA-132 (JJF)

**INVALIDITY EXPERT REPORT OF
DR. DAVID FELKER**

ACUSHNET COMPANY,

Counterclaimant,

v.

BRIDGESTONE SPORTS CO., LTD., and
BRIDGESTONE GOLF, INC.,

Counterdefendant.

D. Opinion Regarding Invalidity of Claims 1, 6 and 7 of the ‘852 Patent as Obvious

I understand that even if a claim is not anticipated by the prior art, the claim may still be rendered invalid if it is obvious in light of the prior art. When determining obviousness, more than one reference may be combined to invalidate the claim in question. When combining references, I understand that a motivation to combine the references must exist in the references themselves, or in light of the experience of one of ordinary skill in the art.

Further, when determining obviousness of a claim, I understand that secondary considerations also must be considered. I understand that the secondary considerations that have been raised by Bridgestone in this case include commercial success, licensing, copying, prior attempts and failures and obtaining unexpectedly better performance results.

1. Combination of Prior Art References

Claims 1, 6 and 7 of the ‘852 patent are obvious in light of the combination of any of: (a) the Nesbitt ‘193 patent; (b) U.S. Patent No. 5,314,187 (“Proudfit ‘187”); (c) the Wilson Ultra Tour Balata 90 Golf Ball (“UTB 90”), manufactured by Wilson Sporting Goods; (d) the Wilson Ultra Tour Balata 100 Golf Ball (“UTB 100”), manufactured by Wilson Sporting Goods; and/or the knowledge of those of ordinary skill in the art.

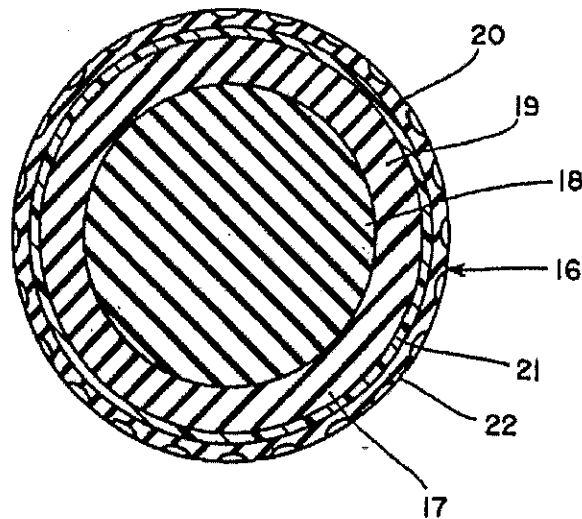
a. Nesbitt ‘193

The Nesbitt ‘193 patent is discussed fully earlier in this report. To the extent that any element of Nesbitt ‘193 is not found to be inherent from the disclosures in that patent, the ‘852 patent is still obvious. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventors (*i.e.*, improving feel and flight distance), would have been led to make the combination recited in the asserted claims of the ‘852 patent.

b. Proudfit '187

U.S. Patent No. 5,314,187 to Proudfit ("Proudfit '187") (Ex. 12) issued May 24, 1994, based on an application filed June 29, 1992. As Proudfit '187 issued as a patent more than one year before the '852 patent application was filed, I understand that Proudfit '187 is prior art. A copy of the Proudfit '187 prior art reference is attached to this report as Exhibit 12. I have reviewed the Proudfit '187 patent in light of claims 1, 6 and 7 of the '852 patent.

Proudfit '187 describes a multi-piece solid golf ball, with a solid core, an inner cover and an outer cover layer. (Ex. 12, Proudfit '187, at Abstract). The inner cover is molded over the core and the outer cover is molded over the inner cover. (Ex. 12, Proudfit '187, col. 5, lines 44-46). The inner cover is formed from a relatively hard, cut-resistant material such as ionomer resin, and the outer cover or layer is formed from relatively soft material such as natural and synthetic balata. (Ex. 12, Proudfit '187, col. 5, lines 46-51). The Proudfit '187 patent provides a golf ball which has many of the desirable features of balata covered balls ("click" and "feel") but is more durable, more cut-resistant, and easier and less expensive to manufacture. (Ex. 12, Proudfit '187, col. 5, lines 8-12). Figure 2 of the Proudfit '187 patent, reproduced below, shows a multi-piece golf ball of its invention, with a solid core (18), an inner cover (21) and an outer cover (22):

Fig. 2

The Proudfit '187 discloses a golf ball having a core diameter of 1.000 to 1.500 inches. (Ex. 12, Proudfit '187, at col. 7, line 35-37.) This equates to 25.4 mm to 38.1 mm. The Proudfit '187 discloses a golf ball having an inner cover diameter of 0.0250 to 0.2875 inches. (Ex. 12, Proudfit '187, at col. 7, lines 37-39.) This equates to 0.635 mm to 7.302 mm. The Proudfit '187 discloses a golf ball having an outer cover thickness of 0.0450 to 0.0650 inches. (Ex. 12, Proudfit '187, at col. 7, lines 40-42). This equates to 1.143 mm to 1.651 mm. In summary:

Layer	'852 Thickness Claim Requirements	Thickness of Layers Proudfit '187 Prior Art
Outer Cover	Between 1 – 3 mm	1.143 mm to 1.651 mm
Inner Cover	At least 1 mm	0.635 mm to 7.302 mm
Core	At least 29 mm	25.4 mm to 38.1 mm

The Proudfit '187 ball includes an inner layer formed from a relatively hard, cut-resistant material and an outer layer of soft material such as balata or a blend of balata and other elastomers. (Ex. 12, Proudfit '187, at col. 5, lines 13-17).

c. Wilson Ultra Tour Balata 90

The Wilson Ultra Tour Balata 90 golf balls were on sale and in use in the United States as of at least March of 1993⁴. Therefore, I understand that the UTB 90 golf balls are prior art to the '852 patent.

The UTB 90 golf balls appear to be the commercial embodiments of the Proudfit '187 patent, discussed above. My understanding is based on the similarities between the disclosures of the '187 patent and the properties of the UTB 90 balls we tested, 2) the fact that Wilson is the assignee of patent '187, 3) the fact that the '187 patent was filed less than 1 year before the commercial introduction of the UTB 90 golf ball to the disclosures, and 4) the "New 3 Piece Process" given in Proudfit '187 (Ex. 12, Proudfit '187, col. 10, Table 10) corresponds to my understanding of how the UTB 90 would be made.

Following my direction, engineers measured the specific gravity of the core and intermediate layer of the prior art UTB 90 golf ball. (Ex. 13). The tests were performed in accordance with a protocol that I designed, and I have personally inspected the equipment used to perform them. The specific gravity of the core of the UTB 90 ball is 1.132, which is less than 1.4 as required by claim 1 of the '852 patent. The specific gravity of the intermediate layer of the UTB 90 ball is 0.963, which is less than 1.2 and is also less than the specific gravity of the core, as required by claim 1 of the '852 patent.

The specific gravity of the intermediate layer of the UTB 90 ball (0.963) further meets the limitation of claim 7, which requires the specific gravity of the intermediate layer to be in the range of 0.9 to 1.0. The difference between the specific gravity of the center core and the intermediate layer is 0.169, which is between 0.1 to 0.5 as required by claim 6 of the '852 patent.

⁴ Per Jeff Dalton at Acushnet, there is an entry in Acushnet's Competitive Ball Database that shows a sample of these balls was logged in on 3/5/93 (log # 93007).

At my direction, the hardness of the intermediate layer of the prior art UTB golf ball was measured and found to range between 86.6 to 89.7 on the JIS C scale, which is greater than 85 as required by claim 1 of the '852 patent. (Ex. 13).

At my direction, the thicknesses of the outer cover and intermediate layer of the UTB 90 prior art golf ball were measured. The thickness of the outer cover ranged from 1.27 mm to 1.35 mm, which is within the claimed range of 1 -3 mm, as required by claim 1 of the '852 patent. (Ex. 13).

The thickness of the intermediate layer ranged from 0.66 mm to 0.76 mm. (Ex. 13). Claim 1 of the '852 patent requires that the intermediate layer have a thickness of at least 1 mm. Although the testing of the Wilson UTB 90 prior art balls show an intermediate layer less than 1.0 mm, the patent covering the UTB 90 ball, the Proudfit '187 patent, discloses that the intermediate layer can range up to 7 mm.

Thus, the construction of the Wilson UTB 90 golf ball that includes the variation disclosed in the Proudfit '187 patent to the intermediate layer thickness, such that the intermediate layer thickness is greater than 1 mm, would possess all of the claimed limitations of the asserted claims of the '852 patent. It is my opinion, therefore, that claims 1, 6 and 7 of the '852 patent are made obvious by combining the disclosures of the Proudfit '187 patent, discussed above, with the inherent characteristics of its commercial embodiment (i.e., the UTB 90 golf ball) and/or the knowledge of one of ordinary skill in the art at the time of the '852 invention.

2. Motivation to Combine Prior Art References

Each of claim 1, 6 and 7 of the '852 patent is obvious by the combination of two or more of (a) the Nesbitt '193 patent; (b) U.S. Patent No. 5,314,187 ("Proudfit '187"); (c) the Wilson Ultra Tour Balata 90 Golf Ball ("UTB 90"), manufactured by Wilson Sporting Goods; (d) the Wilson Ultra Tour Balata 100 Golf Ball ("UTB 100"), manufactured by Wilson Sporting Goods; and/or (e) the knowledge of those of ordinary skill in the art.

Each reference is generally directed to the same problem of improving the “feel” and “durability” of golf balls without sacrificing flying performance. Further, each reference is generally directed to a multi-piece golf ball with prescribed materials and thicknesses for the core, the intermediate or inner cover layer and the outer cover.

With respect to the Nesbitt ‘193 patent, motivation to combine is provided by the prior art reference itself, the knowledge of one of ordinary skill in the art and what the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. The Nesbitt ‘193 reference is directed to improving the “feel” of a golf ball without sacrificing the flying performance. (Ex. 5, Nesbitt ‘193, col. 1, line 65 – col. 2, line 9: “The three-piece golf ball of the invention provides a golf ball in which ... the playing characteristics or ‘feel’ associated with a balata covered ball [are] secured ... without sacrificing any advantages of a golf ball having a standard Surlyn cover of the prior art ball...”).

The Nesbitt ‘193 obtains this goal through an improved method of making a three-piece golf ball with prescribed materials and thicknesses for the solid core, the inner cover layer and the outer cover layer, (Ex. 5, Nesbitt ‘193, col. Abstract; col. 1, line 35 – col. 2, line 9; col. 3, lines 16-25), in which, the inner cover is made of a hard resinous material, such as Surlyn 1605, while the outer cover is made of a comparably softer resin, such as Surlyn 1855. (Ex. 5, Nesbitt ‘193, col. 3, lines 16-25).

One skilled in the art can derive the specific gravity and exact hardness properties of the disclosed materials in the Nesbitt ‘193 patent by using basic geometry and looking up established scientific properties of the materials. These tasks were easily within the skill of one in the art at the time of the ‘852 invention. Therefore, combining the Nesbitt ‘193 patent with the knowledge of those of ordinary skill in the art makes the claims of the ‘852 patent obvious.

With respect to combining the Proudfit ‘187 and UTB 90/100 golf balls, the motivation to combine is similarly provided by the references themselves, the knowledge of one of ordinary skill in the art and what the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. The Proudfit ‘187 patent, discussed above, describes a golf

ball with an improved cover with prescribed thicknesses for the solid core, the inner layer and the outer cover layer, (Ex. 12, Proudfit ‘187, col. 7, lines 35-46), to result in a golf ball with improved durability. (Ex. 12, Proudfit ‘187, col. 5, lines 8-11: “The invention provides a golf ball which has many of the desirable features of balata covered balls but is more durable, more cut-resistant, and easier and less expensive to manufacture than conventional balata covered balls.”)

The UTB 90/100 ball is the commercial embodiment of the Proudfit ‘187 patent, and therefore, is solving the same problems as the invention disclosed in the Proudfit ‘187 patent. Therefore, one of ordinary skill in the art would immediately be motivated to combine the characteristics of the UTB ball with the Proudfit ‘187 patent.

VI. U.S. PATENT NO. 5,743,817

A. The Disclosure of the ‘817 Patent

The ‘817 patent issued to Hisashi Yamagishi, Yoshinori Egashira, and Hideo Watanabe on April 28, 1998. The inventors intended to invent a two-piece golf ball that provided the good flight control of a wound golf ball while maintaining the distance benefit of solid core golf balls. (Ex. 15, Watanabe 8/24/06 Dep. at 55:16-57:3; 58:13-59:19). They sought to provide those advantages by controlling the thickness and hardness of the cover and finding an “optimal balance” between the distortion of the core and the distortion of the ball. (Ex. 15, Watanabe 8/24/06 Dep. at 63:20-64:15; 66:6-11).

The ‘817 patent pertains to golf balls that allegedly exhibit improved feel, spin properties and iron control “without detracting from the trajectory and flying distance inherent to the solid golf ball.” (Ex. 16, ‘817 patent at col. 1, lines 28-33). The purpose was to combine control – a performance benefit of traditional wound golf balls – with the increased distance off the tee that is generally attributable to solid core golf balls. (Ex. 17, Egashira 9/29/06 Dep. at 81:10-82:6).

The patent covers solid golf balls having a core and a cover enclosing the core. (Ex. 16, ‘817 patent at col. 1, lines 34-36). Claim 1, the only asserted claim, reads:

was less than 60, as shown above. Thus, although JP '673 does not explicitly disclose a Shore D cover hardness within the claimed range as measured on the ball, that property is inherent to the examples in Table 4 using Himilan 1855.

That limitation is also inherent under Bridgestone's proposed Shore D measurement method. In addition to measuring the cover hardness on the ball, I formed plaques of the cover compositions described above using Himilan 1855 and measured them with a Shore D durometer according to ASTM Standard D 2240. Again, the result was less than 60 for each sample, as shown above. Thus, I conclude that this limitation is inherently disclosed by JP '673.

Based on the foregoing analysis, I conclude that JP '673 invalidates claim 1 of the '817 patent.

F. Alternatively, The '817 Patent Is Invalid As Obvious In Light Of JP '673

The only limitations from the '817 patent not explicitly taught by JP '673 are (1) the claimed ratio of core distortion divided by ball distortion and (2) the Shore D hardness of the cover. As shown above, however, those limitations were neither novel nor invented by Bridgestone – golf balls constructed from Table 4 of JP '673 meet those limitations, as do Bridgestone's Precept EV Extra Spin golf ball and the golf balls taught in Bridgestone's GB '628 reference. Even if JP '673 did not inherently disclose those limitations, however, it would have been obvious to one of ordinary skill in the art.

1. The Claimed Ratio Of Core Distortion Divided By Ball Distortion Would Have Been Obvious To One Of Ordinary Skill In The Art

As shown by Bridgestone's own Precept EV Extra Spin golf ball and GB '628 reference, the basic physics of placing thin ionomer cover over a soft core dictate that the ball will distort slightly less than the core alone, due to the restraining effect of the cover layer on the core. Thus, any ratio of core distortion divided by ball distortion for such a construction would be either 1 (where the ball distortion and core distortion are the same) or slightly greater than 1

(where the ball distortion is slightly less than the core distortion). Through an understanding of the basic physics of ball construction and/or knowledge of the Precept EV Extra Spin golf ball, one of ordinary skill in the art of golf ball manufacturing would appreciate that the ratio of core distortion divided by ball distortion should be between 1.0 and 1.3, as they did for the similar-constructions used by the Precept EV Extra Spin golf ball and in the GB '628 publication.

2. The Claimed Range of Shore D Hardness Would Have Been Obvious To One Of Ordinary Skill In The Art

As further shown by Bridgestone's own Precept EV Extra Spin golf ball, it would have been obvious to use a cover with a Shore D hardness of up to 60 with a soft core construction. The soft core is designed to improve feel; a cover with a Shore D hardness of up to 60 contributes to the feel, whereas a harder cover would detract from it. This fact was recognized in the Precept EV Extra Spin, which used a cover with a Shore D hardness of 52.

VII. THE '707, '834, AND '791 PATENTS

A. Overview of the Patents

I will now address three related Bridgestone patents: U.S. Patent No. 5,782,707 (the '707 Patent) (Ex. 25), U.S. Patent No. 5,803,834 (the '834 Patent) (Ex. 26) and U.S. Patent No. 6,679,791 (the '791 Patent) (Ex. 27). These three patents claim golf balls having a core with a surface harder than the center, where the hardness of the core increases radially outward from the center, sometimes increasing by a specific amount. This feature is referred to in the art as a hardness gradient in the core. In particular, a core's "hardness gradient" is a measurement of how the hardness of the core's rubber changes from the center of the core to its surface.

1. The '707 Patent

The '707 patent, entitled a "Three-Piece Solid Golf Ball," was applied for at the PTO on March 10, 1997, claiming priority to Japanese patent application no. 8-082121, filed March 11, 1996. The PTO issued the '707 Patent to Bridgestone on July 21, 1998, naming as the inventors Hisashi Yamagishi and Hiroshi Higuchi. The claims of the '707 are directed to the following

B. The '707 Patent is Obvious in Light of European Patent 0 633 043

It is also my opinion that claim 1 of the '707 patent is invalid based on obviousness in light of the combination of European Patent 0 633 043, which discloses the claimed intermediate layer and core, and the knowledge of one skilled in the art.

EP 0 633 043 ("EP 043") (Ex. 47) issued on April 6, 1997 to Bridgestone, naming Hiroshi Higuchi, Hisashi Yamagishi, and Yoshinori Egashira as inventors of this patent. Mr. Yamagishi and Mr. Higuchi are also the two inventors on the '707 Patent. The EP '043 claims priority to a Japanese application filed in August 1993. As EP '043 claims priority before the priority date of the '707 patent (March 1996), I understand that EP '043 is prior art under 35 U.S.C. § 102(a).

EP '043 claims a three-piece solid golf ball that has a solid core, an intermediate layer and an outer cover layer, just like the golf ball disclosed in the '707 patent. The ball has an intermediate layer which is hard relative to the cover and the core. *See* [0010]. The purpose of the invention is to provide good flight performance, control, feel, and durability. *See* [0009].

The EP 043 patent teaches a core which is formed from a "well known rubber composition." *See* [0017]. Just like the '707 patent, the EP 043 patent provides the core recipe, core diameter, curing time, and curing temperature. *See* Table 1; [0023]. The specification discusses a core hardness of 45 to 80 degrees. *See* [0011].

The EP 043 reference provides nine example balls, and provides detailed instruction as to their manufacture. These instructions include the core composition, curing time, and curing temperature. Table 2 of the EP 043 patent discloses the resulting measurements for the cover hardness, intermediate layer hardness, and core surface hardness of the example balls... Although the inventors did not disclose the core center hardness of the example balls, based upon the teachings of the specification, one of ordinary skill in the art can easily determine that value.

The engineers followed the directions in the EP '043 patent to make and measure the properties of the core. Because the EP '043 patent's instructions are just as detailed as those of

the '707 patent, one of ordinary skill should get a consistent core center hardness by following the instructions in the patent.¹⁵ The engineers manufactured a core and measured the core center hardness at 50.2 degrees. The core had a surface hardness of 67.4 degrees, which is equivalent to the example hardness of 66 degrees in light of the repeatability of durometer measurements.¹⁶

a. “wherein the core center hardness is up to 75 degrees”

The center hardness of the core manufactured in accordance with the recipe and curing conditions disclosed in EP '043 was 50.2 degrees, which meets this limitation.

b. “the core surface hardness is up to 85 degrees”

In Example 2 of Table 2, the EP '043 patent discloses a core with a surface hardness of 66 degrees, which meets this limitation.

c. “the core surface hardness is higher than the core hardness by 8 to 20 degrees”

The hardness gradient of the core manufactured in accordance with the recipe and curing conditions disclosed in EP '043 was 17.2 degrees, which meets this limitation.

d. “The intermediate layer hardness is higher than the core surface hardness by at least 5 degrees”

Example 2 of Table 2 discloses a core with a surface hardness of 66 degrees and an intermediate layer hardness of 91 degrees. This yields a difference of 25 degrees, which is well within the claimed range.

¹⁵ That is, the variation in the results should be consistent with the measurement variation which I discussed above. In addition, since Acushnet owns English-unit molds, the tests used a 35.28 mm core mold in lieu of the 35.31 mm diameter specified in the patent. The difference between these diameters on core hardness is miniscule (0.09%).

¹⁶ The relative repeatability of the Shore-D durometer measurement is 15.7%. *See* ASTM D-2240 (Ex. 42). The JIS-C test has a similar repeatability.

e. “the cover hardness is lower than the intermediate layer hardness by at least 5 degrees”

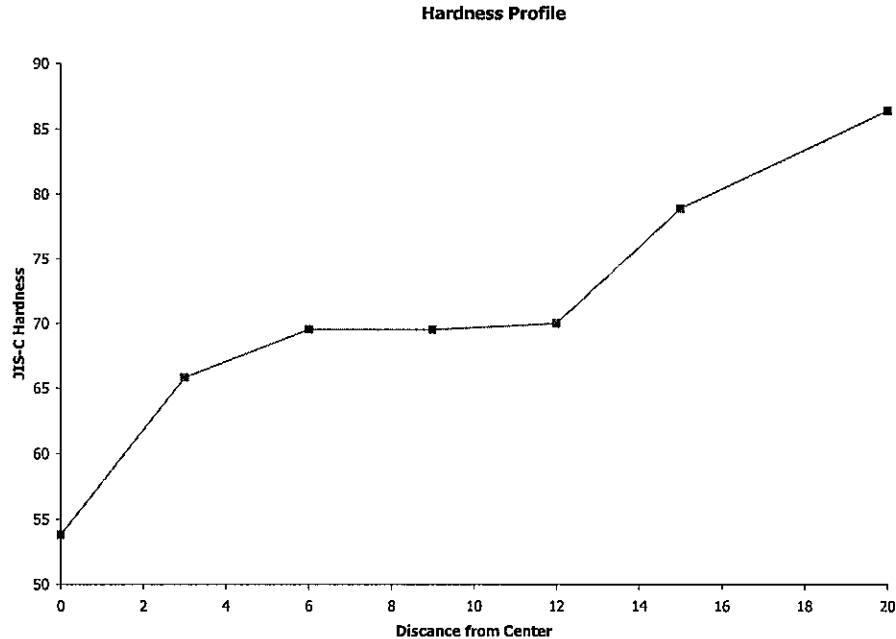
Table 2 shows that Example 2 has a cover hardness of 82 degrees. *See* Table 2. This is nine degrees lower than the intermediate layer hardness, and therefore meets this limitation.

f. “the dimples occupy at least 62% of the ball surface”

It would have been obvious to one of ordinary skill in the art in March of 1996 to use a dimple pattern of at least 62% when constructing Example 2 in Table 2. The EP ‘043 does not disclose the dimple coverage of the Example 2 ball. However, it evaluated the flying performance of the example balls, *see* [0027], and example 2 demonstrated good flying performance. *See* Table 2. One of ordinary skill in the golf ball art would recognize that, for a ball to have good flying performance, it would have to have dimples. Therefore, one of ordinary skill in the golf ball art would have looked to what was common in the golf ball art at the time the patentee filed the application that resulted in the EP ‘043 patent and use a comparable design.

Exhibit 48 is a summary of the percentage dimple coverage for a variety of golf balls from 1992 through 1994, and was generated from Acushnet’s competitive test data. During that time period, I understand that Acushnet personnel routinely measured dimple characteristics of competitive golf balls using a profilometer device. Exhibit 48 lists percentage dimple coverage of numerous competitively tested balls, which have been calculated using the phantom sphere method described in the ‘707 specification. *See* Col. 5, l. 35 – col. 6, l. 15.

As Exhibit 48 shows, almost all of the competitive balls considered between 1992 and 1994 had dimple surface coverages well in excess of 62%. Dimple surface coverage has increased over time – so it would have been obvious to use at least surface coverage as was common at that time – not less. Consequentially, it would have been obvious to one of ordinary skill in the art to use a dimple pattern with at least 62% dimple coverage.



The plot of the hardness profile above gradually increases. In fact, one of ordinary skill in the art would expect that a one-piece core manufactured in accordance with the instructions of the '247 and the knowledge of one skilled in the art would gradually increase in hardness, or in other words, not have any steep or abrupt changes in hardness. Therefore, the '247 patent meets this limitation of claim 1.

Finally, claim 1 also requires that the elastic core have a "difference in JIS-C hardness of at least 22 between the center and the surface." All of the sample cores had a hardness gradient between 25.7 and 32.6 degrees JIS-C, which is well above 22 degrees.

Table 1 of the '247 patent gives the formulations for each of the example cores. As can be seen, all example balls make use of 1 phw of the zinc salt of pentachlorothiophenol, which satisfies claim 11 of the '791 patent.

Table 5 of the '247 patent shows that the cover hardness of Comparative Example 6 is 62 degrees Shore D. This converts to 76 degrees JIS-C using the DuPont conversion.³² The

³² Using the Bridgestone conversion formulae, the JIS-C hardness is calculated to be 75, 76, and 76, respectively. The claim limitation is met regardless of which of these values I use.

intermediate layers in Comparative Example 6 have a Shore D hardness of 62, which converts to a JIS-C hardness of 92 degrees. Therefore, the intermediate layer is harder than the cover when compared using the JIS-C hardness scale.

Claim 16 of the '791 patent depends from Claim 13 and further requires that the intermediate layer has a Shore D hardness of 50 to 67. Table 4 of the '247 patent gives the Shore D hardness of all intermediate layers. As can be seen above, Comparative Example 6 possesses an intermediate layer of 62 degrees Shore D.

Claim 24 of the '791 patent is an independent claim. Claim 24, however, also is substantively the same as claim 1, but requires that the intermediate layer is harder than the cover "having a Shore D hardness of 45 to 58." Table 4 of the '247 patent lists the Shore D hardness of the example ball covers. Comparative Example 6 has a cover hardness of 50 degrees Shore D.

D. The '791 Patent is Rendered Obvious In View of U.S. Patent No. 6,390,935

United States Patent No. 6,390,935 (Ex. 39) issued to Sumitomo Rubber Industries on May 21, 2002. Kazushige Sugimoto was the inventor. Its application was filed on October 7, 1999, which is before the Japanese priority date of the '791 patent. The purpose of the invention is to achieve good flight distance, controllability, and feel. Col. 2, ll. 10-14. It provides a multi-layered golf ball with special relationships between the hardness of different layers. In particular, it shows a "center," or core, with a difference in hardness between its center and surface of at least 8 degrees JIS-C. Col. 2, ll. 22 – 25.

The '935 patent provides a three-piece golf ball with a "center," "outer shell," and a "cover."³³ Col. 2, ll. 15 – 21. The center may have a hardness which is gradually increased from its center point to its surface. Col. 2, ll. 62-64. The center has a hardness at its surface which is

³³ One of ordinary skill in the golf ball art would recognize that the three piece structure shown in the '935 patent corresponds to the structure in the '791 patent. The center discussed in the '935 patent corresponds with the core discussed in the '791 patent. The outer shell discussed in the '935 patent corresponds with the intermediate layer claimed in the '791 patent.

higher than the hardness at its center point by 8 degrees, preferably by 10 degrees. Col. 3, ll. 3 – 8. The difference in hardness is preferably 25 degrees or smaller. Col. 3, ll. 22 – 24. Organic sulfide compounds may be used in the center. Col. 4, ll. 66 – 68. Dimples are formed into the ball's cover. Col. 8, ll. 42-43.

Each of claim 11, 13, 16, and 26 of the '791 patent is obvious by the combination of the '935 patent with the '563 patent and/or the '247 patent. Each reference is generally directed to the same problem of obtaining good flight distance and controllability. The '563 patent is directed to improving the flying distance, controllability, straight travel and roll of the golf ball. Col. 1, ll. 55-57. The '247 patent is directed toward improving flight distance, control, feel, and durability. Col. 2, ll. 11-16. The '935 patent is directed towards good flight distance, controllability, and feel. Col. 2, ll. 10-14. All three patents teach the use of three-piece golf balls.

The '935 patent teaches that having a hardness gradient less than 8 would result in having either a poor shot feeling, poor durability, or poor flight distance. Col. 3, ll. 3-22. The patent also teaches that a hardness gradient of up to 25 degrees is preferred. Col. 3, ll. 21-23. It would be obvious to use a core with this hardness gradient to obtain the shot feeling, durability, and flight distance desired in the '247 and '563 patents.

E. The '791 Patent is neither Enabled nor Supported by the Written Description

The '791's specification shows that Bridgestone did not invent any technology embodied in the '791 patent which fulfills the entire range of the claim limitation, "[said elastic core] has a difference in JIS-C hardness of at least 22."

The maximum theoretical core hardness gradient is about 100 degrees.³⁴ However, technology that can create such a gradient is not known in the art. There are limits on what is

³⁴ There is a theoretical upper limit of core hardness gradient. You would achieve this limit by curing the core in such a manner that the outer surface is completely vulcanized and is made as hard as possible, and the center is completely uncured. I can assume that the completely vulcanized rubber could be made to have nearly the

generally known to be achieved in curing a single piece of polybutadiene. Conventional techniques have an upper limit on the gradient that they can achieve.

The specification does not describe the use of any technology that would yield gradients in excess of 40 or 50 degrees. Golf ball cores can be *single layer*, or made from a single piece of polybutadiene, or *multilayer*, or made of two or more layers of polybutadiene. A multilayer core can have a larger core gradient, because a soft inner rubber can be wrapped inside a different, harder, outer rubber. The Pro V1x, which has a soft inner core surrounded by a hard outer core, is an example of a multi-layer ball. Because a single layer core is made of one material, however, its gradient can only be made through curing the core in a non-uniform manner. There is a limit to how soft the center can be kept while still curing the outer cover.

I agree with Mr. Shimosaka of Bridgestone that obtaining a gradient of over forty in a single layer core would require a new idea or technology which is not currently known in the golf ball art, and certainly was not disclosed in the specification of the '791 patent.

Q. Now, if you wanted to create a single-layer core that had a very high gradient, let's say 40, that would involve a significant amount of experimentation to try to make that work, right? . . .

A. *Well, rather than any significant amount of experimentation I think that would require an innovative conception of idea or technology.*

11/16/2006 Deposition of Hirotaka Shimosaka 56:10 to 56:20

The specification of the '791 patent is directed towards single-core balls. It only discusses single cores – it never mentions the use of multiple core layers. The patent emphasizes the necessity of a “gradually increasing” hardness profile.³⁵ A multilayer core cannot have a gradually increasing hardness – its hardness takes a distinct jump between the softer inner core

maximum hardness measurable on the JIS-C scale, 100 degrees, and that the uncured rubber would have nearly the minimum, zero degrees. Therefore, the maximum theoretical hardness gradient can never exceed 100 degrees.

³⁵ See Col. 2, ll. 6-9; col. 4, ll. 1-5. The only originally filed claim was directed towards cores with a gradually increasing hardness. See Originally Filed Specification at 15. Independent claims 13 and 24, which did not have this limitation, were added later by amendment. See August 15, 2002 Amendment.

and harder outer layer. Because the specification emphasizes the use of a gradually increasing hardness, it clearly does not address the use of multilayer cores like that in the Pro V1x.

The specification of the '791 patent does not teach the use of cores with gradients over 30. In fact, it teaches away from cores with gradients over 30. It teaches that the upper limit of the hardness difference is "at most 30, preferably 27 or less, and most preferably 25 units or less." Col. 3, ll. 43-45. Table 3 shows three Example cores and six Comparative Examples. *See* Table 3. All of these examples have gradients of 24 or less.

TABLE 3

			Example			Comparative Example				
			1	2	3	1	2	3	4	5
Core	Compo- sition (pbw)	1,4-cis-Polybutadiene	100	100	100	100	100	100	100	100
		Zinc diacrylate	41.0	38.0	35.0	28.0	27.8	38.0	32.1	28.4
		Peroxide (1) ¹⁾	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
		Peroxide (2) ²⁾	0.8	0.8	0.8	0.6	0.6	0.8	0.8	0.8
		Sulfur ³⁾	0.1	0.1	0.1	0	0	0.1	0.1	0.1
		Antioxidant ⁴⁾	0	0	0	0.2	0.2	0	0	0
		Barium sulfate	24.1	25.2	26.4	29.8	29.9	25.2	12.8	14.4
		Zinc oxide	5	5	5	5	5	5	5	5
		Zinc salt of pentachlorothiophenol	1	1	1	0.2	0.2	1	1	1
		Vulcan- ization conditions	Primary	Temperature (° C.)	175	175	175	140	155	175
Time (min)	15			15	15	30	15	15	15	15
Secondary	Temperature (° C.)		—	—	—	165	—	—	—	—
	Time (min)		—	—	—	15	—	—	—	—
Hardness	Surface (JIS-C hardness)		85	83	78	76	76	83	87	80
	Center (JIS-C hardness)		61	59	55	72	60	59	63	56
	JIS-C hardness difference		24	24	23	4	16	24	24	24
Deformation under loading (mm) ⁵⁾			3.4	3.8	4.1	3.3	3.4	3.8	3.4	4.1

The '791 patent is not enabled. It only teaches one how to use single core technology. That technology cannot create cores with gradients much over 40. This comes nowhere near the theoretical limit of what a core gradient can be.

Furthermore, the claims of the '791 patent are not supported by a written description which shows that Bridgestone actually possessed any technology which could create cores with a gradient significantly over 22. First, the patent does not give any example gradients over 25, and states that gradients over 30 are not preferred. Second, the patent only teaches the use of single-

layer cores, a technology that can only obtain gradients of up to around 40. There is nothing in the specification to indicate that Bridgestone was able to produce cores with a gradient over 40.

F. No Secondary Considerations of Non-Obviousness Are Present

It is my understanding that a patent holder may rely on objective indicia of non-obviousness, known as secondary considerations, to try and preserve the validity of its patents. In forming my opinion regarding the asserted claims of the '852, '817, '707, '834 and '791 (the "Bridgestone patents"), I have considered whether any of these secondary considerations are present. I have reviewed Bridgestone's Ninth Supplemental Response to Acushnet's Interrogatory No. 10. In that response, Bridgestone generally contends that all of its asserted patents are non-obvious for the following reasons: (a) the alleged inventions led to unexpectedly better performance results; (b) Acushnet copied Bridgestone's technology; and (c) Acushnet's golf balls were commercially successful. In addition, Bridgestone specifically asserts that the '852, '707 and '791 patents are non-obvious because of Acushnet's failure to produce golf balls with 2 layer covers, that the '834 patent is non-obvious because of the claimed invention's commercial success and that the '852 and '707 patents are non-obvious because Bridgestone licensed those patents to Callaway.

It is my understanding that for objective indicia of non-obviousness to be significant there must be a connection or nexus between the claimed features of the invention and the particular secondary consideration. In its interrogatory response, Bridgestone did not describe or explain a connection between any objective indicia of non-obviousness and claimed inventions.

For example, Bridgestone does not explain how the commercial success of any Bridgestone or Acushnet golf ball was the result of a claimed feature of any Bridgestone patent.

It is my opinion that there can be no nexus between the asserted claims of the Bridgestone patents and the commercial success of Acushnet's current products if Acushnet does not infringe the asserted claim of any of these patents. This fact is also evidence that Acushnet could not have copied the asserted claims of the Bridgestone patents.

In addition, Bridgestone's Interrogatory response does not describe or explain how Acushnet's failure to produce golf balls with two-layer covers was related in any way to a failure to use the claimed features of the '852, '707 or '791 patents. Nor does Bridgestone describe any nexus between the performance of its golf balls and the claimed features of its patents.

Finally, I understand that Callaway licensed the '852 and '707 patents in connection with the settlement of a lawsuit with Bridgestone, but this license does not indicate to me that the claimed inventions were a commercial success. Bridgestone did not describe or explain that Callaway licensed those patents based on the claimed features of the '852 and '707 patents.

In the absence of any explanation of how the secondary considerations are related to the features of the Bridgestone patents, I cannot give Bridgestone's assertions any significant weight. With respect to the '791 patent, considering the minor differences between the patent and the teachings of the '563 and '247 patents, secondary considerations of obviousness (if any are even found to be present) are of minor significance in comparison to the evidence of obviousness. The fact that the '563 and '247 patents clearly possess all of the claimed features of the '791 patent when routine optimization is used to obtain core curing conditions is strong and overwhelming proof of obviousness even if some secondary indicia of obviousness exists.

Therefore, it is my conclusion that the asserted claims of the Bridgestone patents are obvious for the reasons set forth above.

XI. CONCLUSION

I reserve the right to supplement this report should new information come to light that bears on my opinions contained in this report. I reserve the right to supplement or modify this report, if appropriate, to the extent that new or additional information is provided. I also reserve the right to consider and comment on additional evidence that may be presented by experts for Bridgestone.

At trial or any hearing in this litigation, I may provide demonstrative aids, such as computer animations, excerpts from relevant exhibits, deposition testimony, and physical examples, to assist in explaining the subject matter discussed in this report.

Signed this sixteenth day of January, 2007.

/s/ David Felker
David Felker, Ph.D.

EXHIBIT C

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

BRIDGESTONE SPORTS CO., LTD., and
BRIDGESTONE GOLF, INC.,

Plaintiffs,

v.

ACUSHNET COMPANY,

Defendant.

Case No. 05-CA-132 (JJF)

**INVALIDITY EXPERT REPORT OF DR.
JACK KOENIG**

ACUSHNET COMPANY,

Counterclaimant,

v.

BRIDGESTONE SPORTS CO., LTD., and
BRIDGESTONE GOLF, INC.,

Counterdefendant.

$54.21 \leq 20(40) - 550$; which equates to: $54.21 \leq 250$

154. In summary, Cariflex BR-1220 has all of the properties that are required for the second polybutadiene (b) disclosed in claim 2 of the '961 patent:

'961 Claim Requirements Second Polybutadiene (b)	Cariflex BR-1220
Cis-1,4 content of $\geq 60\%$	97-99 %
1,2 vinyl content $\leq 5\%$	1.35 %
Mooney Viscosity ≤ 55	40
Satisfying the relationship $\eta \leq 20A - 550$ A = Mooney Viscosity η = Solution Viscosity	Mooney Viscosity = 40 Solution Viscosity = 63 to 72 mPa·s $54.21 \leq 250$ Equation is satisfied.

155. The addition of Cariflex BR-1220 into a core formulation that contains a first and second polybutadiene, as defined by Nesbitt '940, would anticipate claim 2 of the '961 patent. For example, referring again to Table 6 of the Nesbitt '940 patent, the addition of Cariflex BR-1220 as a base rubber to that formulation (or the substitution of it for Neo Cis 40) would further satisfy the limitations for polybutadiene (b) of claim 2.

156. Therefore, it is my opinion that claims 1 and 2 of the '961 patent is anticipated by Nesbitt '940.

C. Opinion Regarding Invalidity of Claim 2 of the '961 Patent as Obvious

157. I understand that a claim is invalid if it is obvious in light of the prior art. When determining obviousness, I understand that more than one reference may be combined to invalidate the claim in question. When combining references, I understand that a motivation to combine the references must exist in the references themselves, or in light of the experience of one of ordinary skill in the art.

158. Further, when determining obviousness of a claim, I understand that secondary considerations also must be considered. These secondary considerations

include commercial success, a long-felt but unresolved need, failure of others, licensing, copying, and teaching away/skepticism of others.

159. It is my opinion that to the extent any element of claim 2 of the '961 patent is not fully described in the Nesbitt '940 patent, the '961 patent is still invalid based on obviousness.

1. Combination of Prior Art References

160. Claim 2 of the '961 patent is obvious by the combination of any of: (a) Nesbitt '940 patent; (b) U.S. Patent No. 6,486,261 ("Wu '261"); (c) the knowledge of those of ordinary skill in the art.

i. Nesbitt '940 in Combination with the Knowledge of One of Ordinary Skill in the Art

161. The Nesbitt '940 patent is discussed fully above.

162. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including the Nesbitt '940 patent, and motivated by the general problem facing the inventors, would have been led to make the combinations recited in claim 2 of the '961 patent.

163. Nesbitt '940 discloses golf ball core formulations made of blends of polybutadiene rubbers synthesized from neodymium catalysts (such as Neo Cis 40, Neo Cis 60, CB-22, CB-23 and CB-24), and from ultra high Mooney rubbers (such as BR-1220x). Nesbitt '940 further discloses such core compositions can also contain other polybutadiene rubbers with lower Mooney viscosities (such as BR-1220, Taktene 220 and Neo Cis 40) (See Ex. G, Nesbitt '940, at col. 6 line 55 – col. 9 line 56 and Table 6). It was known in the prior art that such polybutadiene rubbers were well-suited for the manufacture of golf ball cores.

164. I have reviewed the physical characteristics of the rubbers disclosed in Nesbitt '940 and have found that at least Neo Cis 40, Neo Cis 60 and CB-23 inherently possess the claimed attributes of polybutadiene (a) of claim 1 of the '961 patent.⁵

165. I have further found, as shown above, that at least Neo Cis 40 and BR-1220 inherently possess the claimed attributes of polybutadiene (b) of claim 2 of the '961 patent.

166. Nesbitt '940 suggests blending rubbers with the attributes of polybutadiene (a) with rubbers with the attributes of polybutadiene (b). It would have been a matter of routine optimization for one of ordinary skill in the art to blend a golf ball core composition using amounts of each type of polybutadiene within the ranges claimed by the '961 patent.

167. In fact, the idea of blending rubber compositions together to form a core was well-known to skilled artisans. In addition to Nesbitt' 940, other prior art patents disclose the blending of such rubbers for a golf ball core, including U.S. Patent No. 5,508,350 to Cadorniga ("Cadorniga '350") (Ex. W), U.S. Patent No. 6,486,261 to Wu et al. ("Wu '261") (Ex. X) and U.S. Patent No. 4,683,257 to Kakiuchi et al. (Kakiuchi '257) (Ex. Y), which is assigned to Bridgestone.

168. Cadorniga '350 discloses a golf ball core formulation made of 50 parts CB-23 and 50 parts Neo Cis 40. (Ex. W, Cadorniga '350, col. 7, line 36-65). The table from Cadorniga '350, reproduced below, further shows a blended polybutadiene golf ball

⁵ My analysis of Neo Cis BR-60 as a polybutadiene (a) of the '961 patent was fully discussed above. Please see Exhibit V for my analysis of Neo Cis 40 and CB-23.

core formulation with inorganic filler (zinc oxide), unsaturated carboxylic acid (zinc diacrylate) and peroxide⁶ within the claimed ranges of the '961 patent:

FORMULAS	1	2	3	4	5	6	7	8	9	10
MATERIALS	PIR	PIR	PIR	PIR	PIR	PIR	PIR	PIR	PIR	PIR
NEO CIS 40	50	50	50	50	50	50	50	50	50	50
CB-22	50	50	50	50	50	50	50	50	50	50
BARYTES	—	—	—	—	—	—	—	—	—	—
ZNO	20.0	20.0	20.0	20.0	20.0	20.0	19.75	19.75	19.75	19.75
ZDA	26.5	26.5	26.5	26.5	26.5	26.5	27.5	27.5	27.5	27.5
ZN PALMATE ¹	—	4.68	—	—	2.34	—	—	4.85	—	—
ZN PALMATE ²	—	—	—	4.68	—	2.34	—	—	—	4.68
ZN STEARATE ¹	4.68	—	—	—	2.34	—	4.85	—	—	—
ZN STEARATE ²	—	—	4.68	—	—	2.34	—	—	4.85	—
REGRIND	—	—	—	—	—	—	—	—	—	—
PEROXIDE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
PHYSICAL PROPERTIES										

169. Kakiuchi '257 further demonstrates that blending polybutadienes for core formulations was well known in the golf ball art much earlier than the priority date of the '961 patent. (Ex. Y, Kakiuchi '257, col. 2, lines 42-51).

170. Therefore, to the extent Nesbitt '940 does not explicitly disclose a golf ball formulation with the blend of rubbers described in the '961 patent, it would have been obvious based on the disclosures in Nesbitt '940 and the knowledge of one of ordinary skill in the art to formulate such a blend.

171. It was further well known in the prior art that the addition of sulfur compounds, as a peptizing agent or radical scavenger, aided in the processability of synthetic rubbers such as high cis polybutadiene. Moreover, the prior art shows that it was even well known in the golf ball art, that the use of sulfur compounds was beneficial. (See, e.g., Ex. D, U.S. Patent No. 5,252,652 and Ex. FF, U.S. Patent No. 4,556,220). For example, Bridgestone's '652 patent, filed in 1990 (twelve years prior to the '961 patent) discloses the benefits of sulfur compounds in the manufacture of improved golf ball cores. (See Ex. D, '652 patent, Abstract).

⁶ Cadorniga '350 specifically discloses that the organic peroxide dicumyl peroxide may be used. (Ex. W, Cadorniga '350, at col. 3, lines 14-16).

172. Therefore, to the extent one were to conclude that Nesbitt '940 does not disclose using a sulfur compound in the formulation of golf ball cores, such use was well known in the prior art, and would have been obvious to one of ordinary skill in the art to include a sulfur compound.

173. As such, it is my conclusion that, in addition to being anticipated as stated above, claims 1 and 2 of the '961 patent are also obvious in light of the Nesbitt '940 patent and the knowledge of those of ordinary skill in the art.

ii. Wu '261 in Combination with the Knowledge of One of Ordinary Skill in the Art

174. U.S. Patent No. 6,486,261 to Wu et al. ("Wu '261") (Ex. X) issued November 26, 2002, based on an application filed November 27, 2000 as a continuation-in-part of earlier filed applications dating back to December 24, 1998. I understand that the November 2000 filing date makes the Wu '261 patent prior art to the '961 patent.

175. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including the Wu '261 patent, and motivated by the general problem facing the inventors, would have been led to make the combinations recited in claim 2 of the '961 patent.

176. Wu '261 describes several core and cover golf ball compositions that may be used to provide desirable resiliency characteristics without sacrificing performance characteristics. (Ex. X, Wu '261, col. 5, lines 25-30).

177. Table 1 of the Wu '261 patent, reproduced below, lists several polybutadienes that may be used to produce resilient golf ball cores, and includes the rubbers discussed above with respect to the Nesbitt '940 patent, including Neo Cis BR-60, Neo Cis BR-40, Cariflex BR-1220, CB-23 and CB-22:

TABLE I

Resilience Index of example polybutadiene polymers			
Rubber	Impact		Resilience Index at
	1000 psi	10000 psi	
CB23	0.954	0.407	55
CB22	0.895	0.358	54
BR 90	0.749	0.150	40
BR 40	0.641	0.146	40
Buticon 8825	0.720	0.114	31
ELARIFLEX BR1120	0.487	0.139	5
BUDENE 12070	0.825	0.588	44

178. Wu '261 teaches that a blend of these rubbers may be used to form the core of a golf ball. (Ex. X, Wu '261, col. 25, lines 3-4). Wu '261 discloses that "at least one" of the rubber materials may be used in the core formulation, thereby further suggesting the well known fact that the core formulations may be blends of two or more rubber materials. (Ex. X, Wu '261, col. 25, lines 3-4).

179. Wu '261 further teaches the use of crosslinking agents, specifically one or more metallic salts of unsaturated fatty acids or monocarboxylic acids. (Ex. X, Wu '261, col. 15, line 63 to col. 16, line 14). The amount and type of crosslinking agent may be varied or selected depending on the amount of desired compression. Wu '261 explains that selecting the amount of crosslinking agent is well known to skill artisans and that a typical amount of crosslinker may be from 10 to 40 percent by weight of the base rubber. (Ex. X, col. 16, lines 7-14).

180. Wu '261 further teaches the use of 0.1 to 5 parts of an organosulfur compound to convert a portion of cis-isomer to trans-isomer during the molding cycle. (Ex. X, Wu '261, col. 12 to col. 14, line 29).

181. Wu '261 discloses the use of inorganic fillers to achieve a desired weight distribution. (Ex. X, Wu '261, col. 16, lines 17-36). Examples provided in Wu '261 show inorganic fillers in amounts from 5 to 39 parts per hundred parts of the base rubber.

(Ex. X, Wu '261, Tables 2, 4, 5 and 6). Moreover, varying the amount of inorganic fillers in a golf ball core was well within the level of the skilled artisan, as shown in several prior art patents, including the Nesbitt '940 patent and the Kakiuchi '257 patent. (Ex. Y, Kakiuchi '257, col. 5, lines 1-31, disclosing the use of 10 to 70 parts of inorganic filler). Kakiuchi '257 teaches a polybutadiene core composition that is rendered crosslinkable by incorporating an unsaturated carboxylic acid or salt and other ingredients such as inorganic filler and organic peroxide in suitable proportions. (Ex. Y, Kakiuchi, col. 5, lines 1-5).

182. Wu '261 patent discloses the addition of organic peroxide, in amounts from 0.1 to 15 parts per hundred, and more preferably between 0.2 and 5 parts. (Ex. X, Wu '261, col. 15, lines 37-62).

183. Wu '261 further discloses a golf ball having a soft outer cover, with a Shore D hardness of 35 to 60, over a hard inner cover, with a Shore D hardness of 50 to 80. (Ex. X, col. 15, lines 6-10; col. 26, lines 14-22). Wu '261 teaches use of an outer cover layer that is softer than the inner cover layer. (Ex. X, Wu '261, col. 26, lines 14-16).

184. Based on the disclosures of Wu '261, it would be a matter of routine optimization for one of ordinary skill in the art to formulate a golf ball core composition using amounts of each type of polybutadiene described in claim 2 of the '961 patent.

iii. Nesbitt '940 in Combination with Wu '261 and the Knowledge of One of Ordinary Skill in the Art

185. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the

inventors, would have been led to make the combinations recited in claim 2 of the '961 patent.

186. The Nesbitt '940 patent and Wu '261 patent, both discussed at length above, disclose all of the limitations of the asserted claims of the '961 patent.

187. To the extent Nesbitt '940 does not explicitly disclose a golf ball formulation with the blend of rubbers described in the '961 patent, it would have been obvious based on the disclosures in Wu '261, and/or the knowledge of one of ordinary skill in the art, to formulate such a blend.

188. As discussed above, the idea of blending rubber compositions together to form a core was well-known to skilled artisans. In addition to Nesbitt' 940 and Wu '261, other prior art patents disclose the blending of such rubbers for a golf ball core, including Cadorniga '350 (Ex. W) and Kakiuchi '257 (Ex. Y).

189. Both Nesbitt '940 and Wu '261 are related generally to golf balls and more specifically to multi-layer golf balls with a core formulated from polybutadiene rubber. Both prior art references are further directed to improving the flight distance of golf balls. (Ex. G, Nesbitt '940 Abstract; Ex. X, Wu '261, col. 1, lines 24-25).

190. Therefore, motivation to combine Nesbitt '940 with Wu '261 is provided by the prior art references themselves, the knowledge of one of ordinary skill in the art and what the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. It is my opinion, therefore, that in addition to being anticipated, the asserted claims of the '961 patent are also obvious.

iv. Additional Prior Art References

191. Several additional prior art patents further show that the claimed invention of the '961 patent was already known prior to its filing date.

192. For example, U.S. Patent 6,162,135 to Bulpett et al. (Bulpett '135) (Ex. Z), discloses a golf ball with a double cover having a solid center, an inner cover, and an outer cover. (Ex. Z, Bulpett '135, col. 22, lines 33-36). Bulpett further discloses a core composition made of a high cis-polybutadiene rubber with a low 1,2 vinyl content. (Ex. Z, Bulpett '135, col. 8, lines 18-28). The core composition of Bulpett also includes metallic salts of unsaturated fatty acids, including zinc acrylate, in amounts from about 10 to 40 percent of the base rubber. (Ex. Z, Bulpett '135, col. 10, lines 7-28). Bulpett further teaches the addition of an organosulfur compound to the core in amount of 0.1 to 8 parts per hundred base rubber. (Ex. Z, Bulpett '135, col. 4, lines 34-44). Bulpett further teaches the addition of inorganic filler to the core, such as zinc oxide and tin oxide. (Ex. Z, Bulpett '135, col. 16, lines 17-36; see also Tables 2-6). Bulpett further teaches the addition of an organic peroxide to the core preferably in an amount of 0.2 to 5 parts per hundred of base rubber. (Ex. Z, Bulpett '135, col. 9, line 55 – col. 10, line 6).

193. U.S. Patent 6,975,131 to Cavallaro et al. (Cavallaro '131) (Ex. AA) discloses a golf ball including a solid core, an outer cover layer and a casing disposed between the core and cover layer. (Ex. AA, Cavallaro '131, Abstract; col. 1, lines 11-14). Cavallaro further discloses using a base rubber composed of CB-23 and BR-60, which I have found to possess all of the claimed limitations of polybutadiene (a) of claim 1 of the '961 patent. (Ex. AA, Cavallaro '131, col. 14, lines 6-14). Cavallaro further discloses the addition of an unsaturated carboxylic acid, including zinc diacrylate, in an amount preferably from about 10 to 40 parts per hundred base rubber. (Ex. AA, Cavallaro '131, col. 5, line 64 – col. 6, line 19). Cavallaro further teaches the addition of an organosulfur compound in an amount less than 40 parts per hundred rubber. (Ex. AA, Cavallaro '131,

col. 6, lines 16-19). Cavallaro teaches the use of inorganic fillers in the core of a golf ball, such as zinc oxide, tungsten, and barium sulfate. (Ex. AA, Cavallaro '131, col. 6, lines 10-38). Cavallaro further discloses the addition of an organic peroxide to the core, including dicumyl peroxide. (Ex. AA, Cavallaro, '131, col. 5, lines 18-24).

194. Cavallaro further discloses an inner cover with a Shore D hardness between about 40 and about 70, and an outer cover with a Shore D hardness of less than about 40, in which the outer cover is softer than the inner cover. (Ex. AA, Cavallaro '131, col. 2, lines 43-48; col. 2, lines 6-23; col. 2, lines 32-42).

195. Based on the disclosures of these patents it would be a matter of routine optimization for one of ordinary skill in the art to formulate a golf ball as claimed in the '961 patent. It is my opinion, therefore, that in addition to being anticipated, the asserted claims of the '961 patent are also obvious.

VIII. OPINION REGARDING THE INVALIDITY OF CLAIMS 1, 5 AND 9 OF THE '652 PATENT BY PRIOR ART

A. *Markman* Proceedings Related to the '652 Patent

196. I understand that some of the terms in the asserted claims of the '652 patent are at issue in *Markman* proceedings before the Court. Specifically, the parties dispute the meaning of "about" and the meaning of the following phrase: "A base rubber selected from the group consisting of polybutadiene rubber, natural rubber, polyisoprene rubber and styrene-butadiene rubber." The Court's ultimate resolution of these claim construction disputes may affect my invalidity analysis.

197. With respect to "about," I understand that both parties agree that this term means "approximately," but dispute the extent to which the modifier "approximately" expands the claimed numerical ranges in the patent. Claim 1 of the '652 patent requires

E. Opinion Regarding Invalidity of Claims 1, 5 and 9 as Obvious

241. I understand that even if a claim is not anticipated by the prior art, the claim may still be invalid if it is obvious in light of the prior art. When determining obviousness, more than one reference may be combined to invalidate the claim in question. When combining references, I understand that a motivation to combine the references must exist in the references themselves, or in light of the experience of one of ordinary skill in the art.

242. Further, when determining obviousness of a claim, I understand that secondary considerations also must be considered. I understand that the secondary considerations that have been raised by Bridgestone in this case include commercial success, copying, prior attempts and failures and obtaining unexpectedly better performance results.

243. It is my opinion that to the extent that any element of the asserted claims of the '652 patent is not fully disclosed in the Fujii reference, the '652 patent is still invalid based on obviousness.

1. Combination of Prior Art References

244. Claims 1, 5 and 9 of the '652 patent are obvious by the combination of any of: (a) Fujii Reference; (b) U.S. Patent No. 4,556,220 ("Tominaga '220"); (c) the Mastication of Rubber publication by H. Fries et al. ("Mastication of Rubber"); (d) U.S. Patent No. 4,722,977 ("Fischer '977"); and/or (e) the knowledge of those of ordinary skill in the art.

i. The Fujii Reference in Combination with the Knowledge of One of Ordinary Skill in the Art

245. The Fujii patent application is discussed fully above.

246. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including the Fujii Reference, and motivated by the general problem facing the inventors (*i.e.*, improving flight distance and durability), would have been led to make the combination recited in the asserted claims of the '652 patent.

247. Fujii discloses the use of BR-01 rubber as a suitable base rubber for the manufacture of golf balls. (Ex. EE, Fujii, at p. 462). BR-01 is a high cis 1,4-polybutadiene rubber. It was well known in the prior art that such rubbers were well-suited for the manufacture of solid golf balls. It was further well known in the prior art that the base rubber of golf balls could be manufactured entirely with such rubber.

248. Fujii further discloses the manufacture of solid multi-layer golf balls. (Ex. EE, Fujii, at p. 461-462). It was well known in the prior art that golf balls could be made with more than one cover layer. One of ordinary skill in the art would recognize that the golf ball disclosed in the Fujii reference could be made with an intermediate layer and an outer cover.

249. Fujii further discloses the addition of between 15 to 50 parts of a zinc or magnesium salt of an unsaturated fatty acid having 3 to 8 carbon atoms. (Ex. EE, Fujii, at 462). This range encompasses the entire range claimed by the '652 patent. It would have been a matter of routine optimization for one of ordinary skill in the art to select an amount of this component within the range claimed by the '652 patent. Moreover, it was well known in the prior art to use between 25 and 40 parts of an unsaturated fatty acid in golf balls.

250. Fujii further discloses the addition of between 0.5 parts and 5 parts of an organic peroxide, such as dicumyl peroxide. (Ex. EE, Fujii, at p. 462). The '652 patent claims a range of about 0.5 to about 3 parts of organic peroxide. It would have been a matter of routine optimization for one of ordinary skill in the art to select an amount of this component within the range claimed by the '652 patent. Moreover, it was well known in the prior art to use between 0.5 and 3 parts of an organic peroxide. The embodiment of the Fujii invention describes using 1.1 parts of organic peroxide. (Ex. EE, Fujii, at embodiment).

251. As such, it is my conclusion that, in addition to being anticipated as stated above, claims 1, 5 and 9 are also obvious in light of the Fujii reference and the knowledge of those of ordinary skill in the art.

ii. Tominaga '220 in Combination with The Mastication of Rubber Article and/or the Fischer '977 Patent

A. Disclosures of the Tominaga '220 Patent

252. U.S. Patent No. 4,556,220 to Tominaga ("Tominaga '220") (Ex. FF) issued December 3, 1985, based on an application filed June 7, 1984 claiming priority to a foreign application filed on June 10, 1983.

253. As Tominaga '220 issued as a patent more than one year before either the foreign filing date or the U.S. filing date of the '652 patent, I understand that it is prior art. I further understand that this is true regardless of whether the '652 patent is entitled to claim priority to its foreign filing date or not. I have reviewed the Tominaga '220 patent in light of claims 1, 3, 5, 6, 7 and 9 of the '652 patent.

254. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including Tominaga '220, and motivated by the

general problem facing the inventors (*i.e.*, improving flight distance and durability), would have been led to make the combination recited in the asserted claims of the '652 patent.

255. Tominaga '220 relates to a solid golf ball with excellent rebound performance, durability and flight carry characteristics produced from one or more agents for regulating the molecular weight of the grafted chain. (Ex. FF, Tominaga '220, at Abstract).

256. Tominaga '220 further relates to one-piece, two-piece and multi-piece solid golf balls. (Ex. FF, Tominaga '220, at col. 1, lines 5-10). Tominaga '220 discloses a two-piece golf ball comprising a solid core and a cover covering the core. (Ex. FF, Tominaga '220, at col.1, lines 6-7). Tominaga '220 further discloses a multi-piece golf ball having one or more suitable intermediate layers between the solid core and the cover. (Ex. FF, Tominaga '220, col. 1, lines 7-9).

257. Table 1 of the Tominaga '220 patent, reproduced below, discloses a core formulation that contains (a) 100% cis-1,4 polybutadiene; (b) 35 parts of zinc acrylate; (c) 1.5 parts of dicumyl peroxide; and (d) 0.5-0.9 parts of 2-(4-morpholinyldithio)benzothiazole:

		TABLE I							
		Example			Comparative example				
		1	2	3	1	2	3	4	
Material of core	Cis 1,4-polybutadiene ⁽¹⁾	100	100	100	100	100	100	100	
	Zinc acrylate	35	40	43	30	35	40	40	
	Zinc oxide	53.1	52.7	52.3	54.5	53.7	52.8	52.7	
	Antioxidant ⁽²⁾	0.5	0.5	0.5	0.5	1.2	1.3	0.5	
	Dicumyl peroxide	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	2-(4-morpholinyldithio)benzothiazole	0.5	0.7	0.9	—	—	—	—	
Physical	Sulfur	—	—	—	—	—	—	0.7	
	Weight (g)	35.30	35.29	35.28	35.32	35.32	35.30	35.20	

TABLE 1-continued

		Example			Comparative example			
		1	2	3	1	2	3	4
property of core	Compression ⁽³⁾	48	50	52	51	50	50	123
	Rebound coefficient index ⁽⁴⁾	109	115	118	102	100	94	—
	Durability index ⁽⁵⁾	102	105	109	101	100	106	—
Flight carry of two-piece solid golf ball (m)		209	210	213	207	206	204	—

⁽¹⁾BR-01: produced by Japan Synthetic Rubber Co., Ltd.

⁽²⁾2,2'-methylene bis(4-methyl-6-tert-butylphenol): produced by American Cyanamid Co., available as Antioxidant 2246

⁽³⁾The value, as expressed in 1/100 inch, of the amount of strain obtained when a definite load was applied after giving a definite initial strain.

⁽⁴⁾The relative value of rebound coefficient with the rebound coefficient of the core obtained in Comparative example 2 as 100.

⁽⁵⁾The relative value of impact resistance, as expressed by the number of applied impacts, with the impact resistance of the core obtained in Comparative Example 1 as 100.

258. Tominaga '220 patent teaches that polybutadiene is used alone as the base rubber or in combination with natural rubber, synthetic polyisoprene, and the like. (Ex. FF, Tominaga '220, at col. 2, lines 15-19). Table 1 of the Tominaga '220 patent includes rubber compositions with BR-01, which, according to Bridgestone's U.S. Patent No. 6,634,961 to Higuchi is a cis-1,4 polybutadiene commercially available from JSR Corporation that has 96 % cis-1,4 content. (See Ex. C, col. 10 lines 55-68; Table 1).

259. Table 1 of the Tominaga '220 patent also discloses that the golf balls of his invention have improved rebound performance, durability and flight carry characteristics. (Ex. FF, Tominaga '220, at Table 1). In summary:

'652 Claim 1 Requirements	Tominaga '220 Patent Disclosures Table 1
Base rubber selected from group, including polybutadiene rubber	100 % cis-1,4 polybutadiene
About 25 to about 40 parts by weight of zinc or magnesium salt of an unsaturated fatty acid having 3 – 8 carbon atoms	35 parts zinc acrylate
About 0.05 to about 2 parts by weight of a sulfur compound selected from the group consisting of pentachlorothiophenol, ...	0.5 to 0.9 parts of 2-(4-morpholinylthio)benzothiazole Sulfur compound, but not within the selected group.
About 0.5 to about 3 parts by weight of an organic peroxide	1.5 parts dicumyl peroxide

260. Tominaga '220 recognized that the moderate hardness and durability of prior art golf balls, as produced from a monomer such as the metallic salt of an α,β -

ethylenic unsaturated carboxylic acid, were due to the fact that the monomer is grafted to the polybutadiene main chain by the action of a free radical initiator, thereby acting as a co-crosslinking agent. (Ex. FF, Tominaga '220, col. 1, lines 19-25). But, when the grafted chain produced in this co-crosslinking became too long, a reduction in the rebound performance of the golf ball occurred. (Ex. FF, Tominaga '220, col. 1, lines 26-29).

261. The Tominaga '220 patent discloses the benefits of adding sulfur compounds to rubber used in the manufacture of golf balls to act as peptizers and regulate the molecular weight of the grafted chain, and thereby resolve the problem faced in the prior art. The Tominaga '220 patent specifically discloses a certain group of polysulfide type compounds that have a superior performance as an agent for regulating the molecular weight of the grafted chain. (Ex. FF, Tominaga '220, at Abstract; col. 1, lines 19-50).

262. During prosecution, the application that issued as the '652 patent was initially rejected as anticipated by Tominaga '220. (Ex. F, Office Action of 07/08/1991 at 2). From reviewing the prosecution history of the '652 patent, I understand that the '652 patent applicants were able to overcome the Examiner's rejection by narrowing the scope of their claims to encompass only certain sulfur compounds, other than the ones disclosed by Tominaga '220, including pentachlorothiophenol or PCTP. (See discussion of '652 prosecution history, above).

B. Disclosures of the Mastication of Rubber Article

263. The Mastication of Rubber article was published in a printed publication on November 11, 1981. (Ex. GG). As the Mastication of Rubber article was published in

a printed publication more than one year before either the foreign filing date or the U.S. filing date of the '652 patent, I understand that it is prior art to the '652 patent. I further understand that this is true regardless of whether the '652 patent is entitled to claim priority to its foreign filing date or not.

264. I have reviewed the Mastication of Rubber article in light of claims 1, 3, 5, 6, 7, and 9 of the '652 patent.

265. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including the Mastication of Rubber article, and motivated by the general problem facing the inventors (*i.e.*, improving flight distance and durability of golf balls), would have been led to make the combination recited in the asserted claims of the '652 patent.

266. The Mastication of Rubber article relates to the importance of regulating the molecular weight of rubbers, (including natural rubber, polybutadiene, polyisoprene and styrene butadiene), for processing.

267. The Mastication of Rubber article further discloses that in addition to decreasing the viscosity, mastication also accomplishes better rheological properties of rubber or rubber compounds. (Ex. GG, Mastication of Rubber article, p. 311).

268. The Mastication of Rubber article further discloses that thiophenols or aromatic disulfides can be used as radical acceptors to stabilize the free radicals of the chain fragments. (Ex. GG, Mastication of Rubber, p. 310).

269. The Mastication of Rubber article further discloses that zinc pentachlorothiophenol (Zn-PCTP) and activated pentachlorothiophenol (Act-PCTP) are

especially well-suited for this type of peptization. (Ex. GG, Mastication of Rubber, p. 314).

270. Table VIII of the Mastication of Rubber article, reproduced below, discloses that PCTP can be used for mastication of synthetic rubbers, including polybutadiene, styrene butadiene and polyisoprene.

TABLE VIII
DOSAGES AND PROCESSING TEMPERATURES FOR THE
MASTICATION OF SYNTHETIC RUBBERS WITH ACT. PCTP

Type of Rubber	Rubber temperature, °C	Act. PCTP, phr
SBR	130-150	2.0-1.0
OE/SBR	130-150	0.5-0.5
NBR	130-150	3.5-2.5
CR	80-110	3.0-2.5
BR	130-160	2.5-0.15
IR	80-150	0.5-0.15
IIR	100-170	0.5-0.15

271. In Table VIII of Mastication of Rubber article, SBR is the abbreviation for styrene butadiene. BR is the abbreviation for polybutadiene. IR is the abbreviation for polyisoprene. NBR is the abbreviation for natural rubber.

272. The Mastication of Rubber article further discloses the reaction sequence that can be expected by adding PCTP to the rubbers identified in Table VIII. Specifically, the article states that "free radicals formed in chain cleavage (e.g., in SBR and NBR) show a low affinity for oxygen. The peptizing agent has a stabilizing effect on free radicals so that they cannot cause branching at the polymer chain." (Ex. GG, Mastication of Rubber, p. 326).

273. The Mastication of Rubber article was authored by H. Fries and R. R. Pandit of Bayer AG. I understand from discussions with Dr. David Felker that Bayer AG was a primary manufacturer of rubber for the golf ball industry, and that it is likely, therefore, that one of ordinary skill in the golf ball industry would have been aware of this article on the Mastication of Rubber by Bayer AG.

C. Disclosures of the Fischer '977 Patent

274. U.S. Patent No. 4,722,977 to Fischer ("Fischer '977") (Ex. II) issued February 2, 1988, based on an application filed January 16, 1985, claiming priority to a foreign application filed on January 26, 1984.

275. As Fischer '977 issued as a patent more than one year before either the foreign filing date or the U.S. filing date of the '652 patent, I understand that it is prior art to the '652 patent. I further understand that this is true regardless of whether the '652 patent is entitled to claim priority to its foreign filing date or not.

276. I have reviewed the Fischer '977 patent in light of claims 1, 3, 5, 6, 7, and 9 of the '652 patent.

277. A person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, including Fischer '977, and motivated by the general problem facing the inventors (*i.e.*, improving flight distance and durability of golf balls), would have been led to make the combination recited in the asserted claims of the '652 patent.

278. The Fischer '977 patent discloses the use of sulfur compounds, including PCTP, in rubber compositions. The Fischer '977 patent teaches useful peptiser-booster combinations for use with natural and synthetic rubber compositions that result in improved vulcanized rubber products. (Ex. II, Fischer '977, at col. 2, lines 2-7). In particular, the peptiser-booster combinations include peptisers such as "salts of higher carboxylic acids, e.g., pentachlorothiophenol." (Ex. II, Fischer '977, at col. 2, lines 36-42).

279. Fischer '977 further discloses that the peptisation boosters of the present invention (*i.e.*, pentachlorothiophenol) can be used in synthetic rubbers such as cis-polybutadiene and cis-polyisoprene. (Ex. II, Fischer '977, col. 4, lines 38-42).

280. The Fisher '977 patent discloses pentachlorothiophenol for use in rubber compositions to not only improve the mastication efficiency, but also improve the resulting vulcanized product. (Ex. II, Fischer '977, at col. 2, lines 37-42).

281. The Fischer '977 patent is directly applicable to golf balls. Just like the Mastication of Rubber article, the '977 patent comes from Bayer AG. Because Bayer was so prevalent in the rubber industry for golf balls, it is my opinion that a skilled artisan looking to improve on a golf ball core formulation would have been aware of the Fischer '977 patent.

**D. Tominaga '220 in Combination with The
Mastication of Rubber Article and/or the Fischer
'977 Patent Make the Asserted Claims of the
'652 Patent Obvious**

282. As discussed above, the Tominaga '220 patent discloses a golf ball with all of the limitations of the asserted claims of the '652 patent except that it identifies a different sulfur compound than that listed in claim 1. Specifically, the golf ball disclosed in Tominaga discloses the use of 2-(4-morpholinylthio)benzothiazole, which is a sulfur compound, but not one of the specific sulfur compounds listed in the '652 patent.

283. During prosecution of the '652 patent application, the inventors overcame an anticipation rejection based on the Tominaga '220 patent by arguing the necessity of the specific sulfur compounds listed in the '652 patent, such as pentachlorothiophenol, because they resulted in "unexpectedly superior" improvement in performance, hardness

and durability, and were previously not known to be useful in golf balls. (*See* discussion of '652 patent prosecution history, above, and Ex. F)

284. Tominaga '220 recognized the advantages of adding a sulfur compound to the base rubber used in making golf balls to act as a peptizing agent. It just failed to explicitly disclose the use of the specific sulfur compounds claimed by the '652 patent.

285. The Mastication of Rubber Article and the Fischer '977 patent, however, both show that pentachlorothiophenol was known to be a well-suited peptizing agent or radical scavenger in the mastication of synthetic rubbers, such as polybutadiene. Based on the disclosures contained in either or both of these references, one of ordinary skill in the art would have known at the time the '652 patent application was filed (or its foreign application) that pentachlorothiophenol would be a suitable sulfur compound to add to rubber compositions of golf balls.

286. Therefore, by combining the disclosures made in the Tominaga '220 patent with the knowledge obtained from the disclosures of either or both the Mastication of Rubber article or the Fischer '977 patent, one of ordinary skill in the art would find the asserted claims of the '652 patent to be obvious.

287. Even if the '652 patent is entitled to rely on its foreign priority date, and the Fujii Reference is not therefore prior art to the '652 patent, it is still highly probative as to what one of ordinary skill in the art would know at the time the '652 application was filed.

288. The Fujii Reference further shows that one of ordinary skill in the art at the time the '652 patent application was filed already knew of the advantages of using pentachlorothiophenol in the base rubber used to make golf balls.

289. Therefore, it is my opinion that one of ordinary skill in the art would be motivated to combine the disclosures of Tominaga '220 with either or both of the Mastication of Rubber article and the Fischer '977 patent.

290. It is my further opinion that such a combination would make the asserted claims of the '652 patent obvious.

iii. Fujii Reference in Combination with Tominaga '220

291. The Fujii Reference and the Tominaga '220 Patent are both directed to the specific field of golf balls. Both also relate to improving the internal core of one-piece and multi-piece golf balls, such that the flight carry characteristics, rebound properties and durability properties of the golf ball are improved. (Ex. EE, Fujii Reference, page 461: "The present invention was developed ... to provide solid golf balls that not only exhibit desirable flight properties but excel in impact properties and durability."; Tominaga '220, Abstract: "The present invention provides solid golf balls having excellent rebound performance, durability and flight carry characteristics...").

292. Therefore, it is my opinion that one of ordinary skill in the art would have been motivated to combine the Fujii Reference with the Tominaga '220 Patent.

293. It is my further opinion that such a combination would make the asserted claims of the '652 patent obvious. The Fujii Reference discloses the addition of pentachlorothiophenol as one of the sulfur compounds that can be added to the base rubber of golf balls and Tominaga '220 discloses all other elements of the asserted claims.

IX. SECONDARY CONSIDERATIONS

294. It is my understanding that a patent holder may rely on objective indicia of non-obviousness, known as secondary considerations, to try and preserve the validity of its patents. In forming my opinion regarding the asserted claims of the '961 and '652 patents, I have considered whether any of these secondary considerations are present.

295. I have reviewed Bridgestone's Ninth Supplemental Response to Acushnet's Interrogatory No. 10. (Ex. L). In that response, Bridgestone generally contends that all of its asserted patents, including the '961 and '652, are non-obvious for the following reasons: (a) the alleged inventions led to unexpectedly better performance results; (b) Acushnet copied Bridgestone's technology; and (c) Acushnet's golf balls were commercially successful. In addition, Bridgestone specifically asserts that the '652 is non-obvious because of Acushnet's failure to produce golf balls with 2 layer covers and because of the commercial success of the invention claimed in the '652 patent.

296. It is my understanding that for objective indicia of non-obviousness to be significant there must be a connection or nexus between the claimed features of the invention and the particular secondary consideration. In its interrogatory response, Bridgestone did not describe or explain a connection between any objective indicia of non-obviousness and the '961 and '652 patents.

297. For example, Bridgestone does not explain how the commercial success of any Bridgestone or Acushnet golf ball was the result of a claimed feature of either the '961 or '652 patent.

298. It is my opinion that there can be no nexus between the asserted claims of the '961 and '652 patents and the commercial success of Acushnet's current products if Acushnet does not infringe any asserted claim of either patent. The fact that the Pro-V1

was in public use and on sale before Bridgestone filed the '961 application is further evidence that the golf ball's commercial success cannot be attributed to the claimed invention. Both of these facts are also evidence that Acushnet could not have copied the asserted claims.

299. Bridgestone's Interrogatory response also does not describe or explain how Acushnet's failure to produce golf balls with 2-layer covers related in any way to a failure to use the claimed features of the '652 patent. Nor does Bridgestone describe any nexus between the performance of its golf balls and the claimed features of either the '652 or '961 patent.

300. In the absence of any explanation of how the secondary considerations are related to the features of the '961 and '652 patents, I cannot give Bridgestone's assertions any significant weight. Also, in connection with the '652 patent, the elements of the asserted claims were so widely known in the prior art that such evidence would not change my opinion regarding the '652 patent.

301. As such, it is my conclusion that the asserted claims of the '652 and '961 patents are obvious for the reasons set forth above.

X. GRADIENTS

302. Gradients in rubber have necessarily existed from the first time rubber articles were fabricated over a hundred years ago. In short, a gradient is an inherent quality of rubber that one of ordinary skill in the golf ball art in 1995 would understand.

303. When rubber articles, like golf balls, are fabricated, the uncrosslinked rubber and other ingredients such as fillers, crosslinking agents, etc., are mixed together and inserted into a mold.

304. The mold is held at the cure temperature, which depends on the decomposition temperature of the crosslinking agent, i.e., a peroxide. The surface of the rubber, which would be in contact with the walls of the mold, will be exposed to an elevated temperature, i.e. the temperature required to decompose the peroxide into free radicals required to cure (crosslink) the rubber.

305. Because rubber is a thermal insulator, it has a low capacity to conduct temperature. As a result, a thermal gradient in the rubber is developed, in which the surface in contact with the mold is at a higher temperature than the interior parts of the rubber.

306. As a consequence, the curing will begin at the surface immediately, but will not begin at the core until the core reaches a sufficiently high temperature to decompose its crosslinking agent.

307. In other words, the rate of the curing reaction is a function of temperature, i.e. the higher the temperature the faster the kinetic reaction of curing. Because the core is at a lower temperature than the surface, the curing reaction at the core is slower than at the surface. Therefore there is a gradient in the degree of cure in the molded rubber article from the surface to the center.

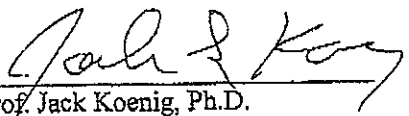
308. This will produce a gradient hardness in the physical and mechanical properties of the rubber from the center to the surface. Thus, for a golf ball, there will always be a gradient in hardness and other physical and mechanical properties from the core to the surface with the surface being higher. This gradient will be greater when the mold temperature is higher and the thickness of the rubber article is large, i.e. like a golf ball.

XI. CONCLUSION

309. I reserve the right to supplement this report should new information come to light that bears on my opinions contained in this report. I reserve the right to supplement or modify this report, if appropriate, to the extent that new or additional information is provided. I also reserve the right to consider and comment on additional evidence that may be presented by experts for Bridgestone.

310. At trial or any hearing in this litigation, I may provide demonstrative aids, such as computer animations, excerpts from relevant exhibits, deposition testimony, and physical examples, to assist in explaining the subject matter discussed in this report.

Signed this sixteenth day of January, 2007.


Prof. Jack Koenig, Ph.D.